THE CONDOR

A Magazine of Western Ornithology

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A Magazine of Western Ornithology

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Issued January 15, 1937

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VOLUME XXXIX JANUARY-FEBRUARY, 1937 NUMBER 1

THE HANCOCK EXPEDITION OF 1935 TO THE BIRD ISLANDS OF PERU

WITH FIVE ILLUSTRATIONS

By JOHN S. GARTH

The Hancock Expedition of 1935, after visiting the Galapagos Islands and the mainland of Ecuador, spent seven days, January 11 to 17, inclusive, among the islands of Peru. Although the collecting of marine invertebrates, particularly crustaceans, was the primary purpose of the expedition, the opportunity of observing at close hand the conduct of the world's most remarkable commercial enterprise based on the conservation of bird life and of obtaining specimens of the most important species concerned was eagerly seized upon. Under the "Compañia Administradora del Guano" the islands are now operated as bird sanctuaries. They are closed to visitors at all seasons of the year, except by special permit, and there are competent guardians to prevent the gathering of eggs for food or the unauthorized extraction of guano. Through the secretary of the Smithsonian Institution, Dr. Alexander Wetmore, and the United States Department of State, permission was secured for the motor cruiser "Velero III," under the command of Capt. G. Allan Hancock, to visit any or all of the fourteen groups of guano islands scattered along Peru's 1200 miles of coastline. Because of the short time available, it was deemed advisable to confine the activities of the expedition to four or five of these. Landings were made, accordingly, at Santa Rosa, Vieja, Ballestas, Chinchas, and Lobos de Afuera; the first and last are, respectively, southernmost and northernmost of the insular groups.

From Callao the expedition proceeded directly to Independencia Bay, 14° south latitude. Before entering the Trujillana Channel it was necessary for the "Velero III" to break her way through endless chains of cormorants flying low over the water, beak to tail, as far as the eye could reach. These were the Guanay (*Phalacrocorax bougainvillei*), a bird which stands in a class alone as Peru's number one producer of high-grade guano. Belonging to the antarctic branch of the cormorants, it is characterized superficially by a white breast and warts about the base of the beak. These birds were on their way to the Santa Rosa Islands, at the southern end of 14-mile-long Independencia Bay, which were visited the afternoon of January 12 and again the following morning.

Flat-topped and precipitous-sided, the Santa Rosa Islands are reached from the rolling launch by a rope ladder. Permanent buildings consist of barracks for the workers and a shelter for the guardian. With the exception of an area thirty feet wide about the buildings and a twenty-foot rim encircling each island, the ground was densely packed with nesting birds of but a single species, the Guanay. When approached closer than eight or ten feet they retreated in great confusion, trampling eggs and young. Once uncovered, a nest would be instantly denuded of every vestige of a feather. Because of the crowding, it is impossible for a Guanay to take flight

except at the edge of the circle, to attain which he must run a merciless gauntlet of vicious thrusts and jabs from every side. Instead of the customary four eggs of the northern cormorants, only two or three are laid. The guard would not allow eggs to be removed from the nest, but presented us with a clutch obtained from his shelter. The Guanay is double-brooded, and eggs and young are to be found at all seasons. It is significant that no marauding gulls or vultures were seen at Santa Rosa, although several condors were observed later in the day about the summit of Isla Vieja. Predators are apparently less a problem, or are better under control, in the southern than in the northern islands.

From Isla Vieja, which separates Independencia Bay from the open Pacific, a sand hook projects on the leeward side, affording a sheltered landing place and an appro-

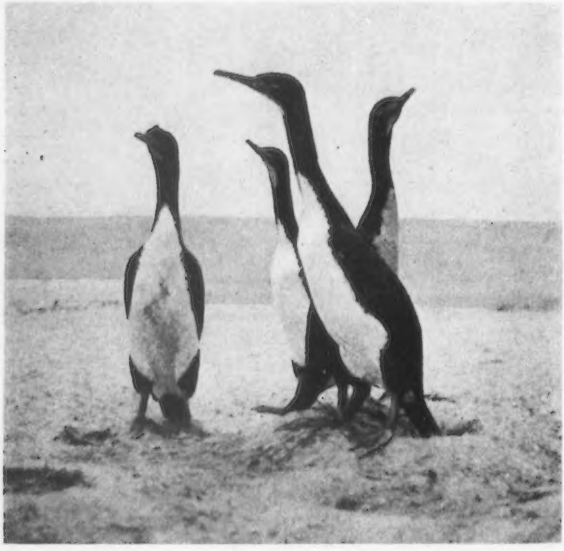


Fig. 1. Guanayes at Santa Rosa Island, coast of Peru.

priate nesting area for two species of gull, *Larus belcheri* and *Larus dominicanus*. Along the rock shingle, pairs of a coal-black oyster-catcher (*Haematopus townsendi*), native to the region, forage beside familiar turnstones, plovers, and spotted sandpipers from North America. A flock of terns, numbering thousands, alighted for an hour on the rocky beach. It is probable that they were migrating Arctic Terns (*Sterna paradisaea*); for had they been either of the local species, *Sterna hirundinacea* or *Sternula lorata*, the chances are that they would have been seen again.

The Humboldt Penguin (*Spheniscus humboldti*) was found burrowing into the hillside at two levels, the one about sixty feet above the tide line, the other several hundred feet higher. A hard, weather-resisting stratum was in each case chosen for the roof of the tunnel. Tracks of the birds were plainly visible from the bay. When approached from the sea, they could be driven into their burrows, then ejected after a little digging. Nine penguins survived the voyage to the San Diego Zoo, where they have since been an outstanding attraction.

While dredging in Independencia Bay, members of the expedition frequently ran down groups of the diving petrel (*Pelecanoides garnoti*). They are totally unlike North American petrels in form and behavior, resembling huge bees in flight rather than birds. During the period of molting they cannot raise themselves out of the water, and, at any season, they can take flight only directly into the wind. Their nests are built high on the sides of Vieja Island facing the southeast trades. Expedition specimens were secured from those which flew aboard at night.

On January 15 a landing was made at the Ballestas Islands, most rugged and wave-worn islands of the central coast. South Ballestas is given over to the Piquero (*Sula variegata*), North Island being reserved for the exclusive culture of the Guanay.

Fig. 2. Guanayes taking flight at Central Ballestas Island, Peru. Piquero nesting in foreground.

On Middle Island, where the two meet, the difference in nesting habit is strikingly apparent. The Piquero chooses the rocky cliffsides, while the Guanay prefers level ground. With this division of real estate, the two species occupy identical ranges, from 4° to 16° south latitude, without dissention. Only the difficulty of retrieving the guano of the Piquero prevents it from outranking the Guanay in total production, for it is the most abundant of the guano birds. When frightened, the Piquero disgorges from four to six small fish which are invariably the anchobeta (*Engraulis ringens*).

Most famous of all the guano islands are the Chinchas. In the early days of the guano industry one hundred or more sailing vessels awaited their turn at these islands to slip beneath the chute for a cargo of pulverized guano worth $90.00 a ton delivered in London (see R. C. Murphy's "Bird Islands of Peru"). At that time Central Island was 100 feet higher than at present and North Island supported a town of 2000 popu-

lation, no trace of which now remains. The substantial buildings of the guano administration give the impression that this is the most important of the islands, strategically, if not also commercially. The abundance of birds is inconceivable. From estimates made by Dr. Forbes of England in 1913, no less than 5,600,000 cormorants occupied Central Chinchas, less than four square miles in area. One thousand tons of fish a day would be necessary to feed such a multitude.

Fig. 3. Nesting colony of Piqueros, South Ballestas Island.

In caves beneath the administration building the Inca Tern or Zarcillo (*Larosterna inca*) nests. The local name means "little earring" and refers to the white mustachios or curled feathers at the base of the crimson beak. Specimens shot from a skiff were retrieved with difficulty because of the surge. The Red-legged Chuita or Shag (*Phalacrocorax gaimardi*) and great lobos or sea lions of a southern species shared the caves with penguins and bats.

The islands of Lobos de Afuera were reached by a 36-hour run north from the Chinchas. Lying just 6° 58′ south of the Equator, they are within the zone of influence of the counter current known as "El Niño." From December to April the Humboldt Stream is deflected by this warmer body of water, which brings with it a characteristic fauna, as the collection of marine invertebrates well shows. The birds of these islands are species adapted to a temperature at least 10° F. warmer than the average for the Humboldt Stream. The Camanay (*Sula nebouxii*) is the familiar Blue-footed Booby of the Galapagos and the west coast of Mexico. The Alcatraz (*Pelecanus thagus*) is a Peruvian species half again as large as the California Brown Pelican. Nesting with the

Camanay, which is not strictly a colonial bird, is to be found the ubiquitous Piquero; but there are no Guanayes on Lobos de Afuera.

Señor Fernando Ramirez was the first guardian who appeared to take a scientific interest in his work. The duties required of him by the guano administration are well-defined and exacting. He is meteorologist, port captain, lighthouse keeper, and custodian, all in one. In the latter capacity he prevents poaching, checks outbreaks of

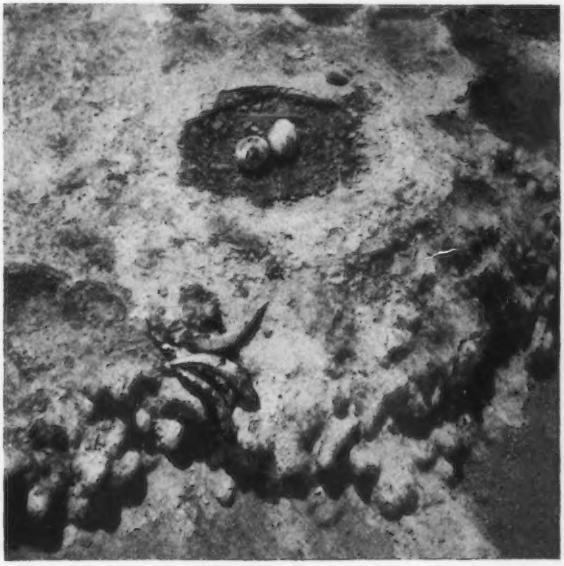


Fig. 4. Nest of Piquero, showing anchobetas disgorged by frightened parent; Central Ballestas Island.

disease, disposes of dead birds, shoots gulls and vultures, and acts for the general welfare of the colony. Copies of the monthly bulletin of the guano administration dealing with the chemical analysis of guano and methods of extraction were presented to the expedition in exchange for current magazines.

The most stupendous spectacle of bird life encountered in four winters of cruising in southern waters was the colony of pelicans on Lobos de Afuera. Although Sr. Ramirez affirmed that the greater part of the 200,000 birds were at sea fishing, the 40,000 which remained afforded ample photographic material. The few adults were continually taking off and alighting with tremendous beating of wings. The half-grown young, naked or in white down, huddled in compact masses like flocks of sheep. Our approach caused the greatest alarm among them. Judging from its apparent susceptibility to fright, the pelican is least satisfactory of the large producers of guano.

Although a week's observation is too brief a period upon which to base accurate conclusions, a few remarks from the ecological standpoint may not be amiss. The writer firmly believes that much could be gained from an unbiased investigation of the status of predators. Their presence in moderate numbers in the past has not prevented the accumulation of guano; on the contrary, it is one of the factors which has operated

to produce large, compact colonies rather than small, scattered ones. The ceaseless warfare now waged against gulls undoubtedly involves innocent migrants as well as guilty indigenes. The practical extermination of the vulture and the condor (although the latter is a harpie from the Andes likely to swoop down at any time) from several of the islands has brought about the more expensive disposal of the bodies of dead birds by cremation. Finally, the role of predators in the control of bird disease, as far as I am able to ascertain, is yet undetermined.

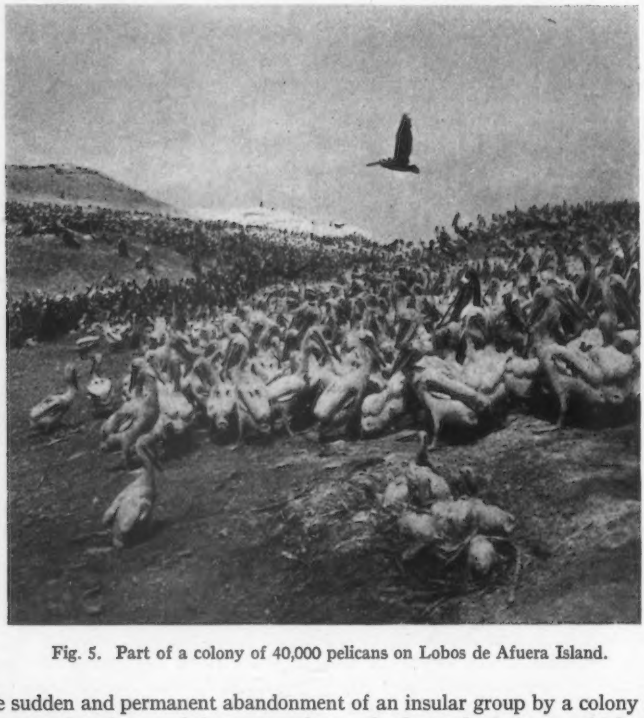


Fig. 5. Part of a colony of 40,000 pelicans on Lobos de Afuera Island.

The sudden and permanent abandonment of an insular group by a colony following digging operations is one of the most serious setbacks to the industry which can occur. In this manner the pelican has withdrawn from all the groups but two. If the present method of extraction, in which all the nests are destroyed every three years, were modified to allow one of a group of three islets to be unmolested in rotation, the decimated islets could be repopulated from this nucleus without the necessity of the birds abandoning the entire group.

In conclusion, the glimpse afforded members of the Hancock Expedition of 1935, of the bird islands of Peru, while brief, was highly satisfactory. The writer wishes to thank Capt. Hancock and the cooperating agencies of the United States and Peruvian governments for the opportunity of studying at first hand the organization of this unique industry.

University of Southern California, Los Angeles, California, June 6, 1936.

THE THICK-BILLED PARROT IN CHIHUAHUA

By ALDO LEOPOLD

The physics of beauty is one department of natural science still in the Dark Ages. Not even the manipulators of bent space have tried to solve its equations. Everybody knows, for example, that the autumn landscape in the north woods is the land, plus a red maple, plus a ruffed grouse. In terms of conventional physics, the grouse represents only a millionth of either the mass or the energy of an acre. Yet subtract the grouse and the whole thing is dead. An enormous amount of some kind of motive power has been lost.

It is easy to say that the loss is all in our mind's eye, but is there any sober ecologist who will agree? He knows full well that there has been an ecological death, the significance of which is inexpressible in terms of contemporary science. A Russian philosopher, Ouspensky, has called this imponderable essence the *numenon* of material things. It stands in contradistinction to *phenomenon* which is ponderable and predictable, even to the tossings and turnings of the remotest star.

The grouse is the numenon of the north woods, the bluejay of the hickory groves, the whisky-jack of the muskegs, the piñonero of the juniper foothills. Ornithological texts do not record these facts. I suppose they are new to science, however obvious to the discerning scientist. Be that as it may, I here record the discovery of the numenon of the Sierra Madre: the Thick-billed Parrot (*Rhynchopsitta pachyrhyncha*).

He is a discovery only because so few have visited his haunts. Once there, only the deaf and blind could fail to perceive his role in the mountain life and landscape. Indeed you have hardly finished breakfast before the chattering flocks leave their roost on the rim rocks and perform a sort of morning drill in the high reaches of the dawn. Like squadrons of cranes they wheel and spiral, loudly debating with each other the question (which also puzzles you) of whether this new day which creeps slowly over the canyons is bluer and golder than its predecessors, or less so. The vote being a draw, they repair by separate companies to the high mesas, for their breakfast of pine-seed-on-the-half-shell. They have not yet seen you.

But a little later, as you begin the steep ascent out of the canyon, some sharp-eyed parrot, perhaps a mile away, espies this strange creature puffing up the trail where only deer or lion, bear or turkey, are licensed to travel. Breakfast is forgotten. With a whoop and a shout the whole gang is awing and coming at you. As they circle overhead you wish fervently for a parrot dictionary. Are they demanding, what-the-devil business have you in these parts? Or are they, like an avian chamber-of-commerce, merely making sure you appreciate the glories of their home town, its weather, its citizens, and its glorious future as compared with any and all other times and places whatsoever? It might be either or both. And there flashes through your mind the sad premonition of what will happen when the road is built, and this riotous reception committee first greets the tourist-with-a-gun.

It is soon clear that you are a dull inarticulate fellow, unable to respond by so much as a whistle to the standard amenities of the Sierra morn. And after all, there are more pine cones in the woods than have yet been opened, so let's finish breakfast! This time they may settle upon some tree below the rim rock, giving you the chance to sneak out to the edge and look down. There for the first time you see color; velvet green uniforms with scarlet and yellow epaulets and black helmets, sweeping noisily from

pine to pine, but always in formation and always in even numbers. Only once did I see a gang of five, or any other number not comprised of pairs.

In spring, I am told, the pair hunts up a woodpecker hole in some tall dead pine and performs its racial duty in temporary isolation. But what woodpecker excavates a hole large enough? The Guacamaja (as the natives euphoniously call the parrot) is big as a pigeon, and hardly to be squeezed into a flicker-loft. Does he, with his own powerful beak, perform the necessary enlargement? Or is he dependent on the holes of the Imperial Woodpecker, which is said to occur in these parts? To some future ornithological visitor I bequeath the pleasant task of discovering the answer.

I do not know whether the nesting pairs are as noisy as these roistering flocks which greeted me in September. I do know that in September, if there are parrots on the mountain, you will soon know it. As a proper ornithologist, I should doubtless try to describe the call. It superficially resembles that of the Piñon Jay, but the music of the piñoneros is soft and nostalgic as the haze hanging in their native canyons, while that of the Guacamaja is louder and full of the salty enthusiasm of high comedy.

I am told that after the acorns ripen, they are attacked by the parrots with as much zest as the pine seeds are earlier. The occasional wanderings of parrots across the border, recorded by Florence Bailey (Birds of New Mexico, pp. 306-307), are doubtless motivated by the search for mast.

One cannot help but wonder what the good roads program now impending throughout Mexico will do for, or to, this species. It does not have a large range; Bailey says only the northern Sierras. I can only hope that Mexico will find ways so far unfound by us to use these mountains without destroying them.

Division of Game Management, University of Wisconsin, Madison, Wisconsin, October 6, 1936.

NEEDLESS PHOTOGRAPHIC FAILURES

By JOHN L. RIDGWAY

The writer's close attention has frequently been directed to a lack of definition in certain half-tone reproductions of photographs appearing in *The Condor,* as well as in many other well-known and widely-distributed scientific publications, while the same volumes often contained beautiful examples of this universally used process of engraving. In calling attention to this rather common variation in quality of print, it is realized that the defects were probably as well known to the editors, and to the authors of the papers themselves, as they were to the present writer. However, he may be permitted to suggest methods which, if adopted, would do much to relieve this condition. Granting the undisputed fact that a loss of some clearness may usually be expected in a half-tone print, a successful cut depends upon a good photograph, or one well retouched, and on suitable paper and careful press work. The failure of many good half-tone cuts to meet requirements is often due to these factors alone; but more often it may be charged to the original photographs which lack the qualities needed to reproduce well.

The popular estimate of photography, compared with every other kind of picture-making, is that it should represent the acme of truthfulness; but, unfortunately, it does not always bear out this desirable standard. The term "photographically correct" is apt to carry with it a feeling of dependable accuracy far beyond that of a mere

drawing, which to greater or less degree must bespeak individual interpretation. That feeling of dependability carries with it the thought that anything photographed must necessarily register its reflection on the sensitive film exactly as the object presented itself in that direction at time of exposure. But there are many details in connection with an exposure that make or mar a true picture. Among them are focusing, lighting, and timing. These three elements, as everyone knows, must be right, and if they are not right the developed print may not be a true or satisfactory image of the subject.

Furthermore, some objects do not photograph well because of color and shadow effects, and authors interested in certain details of specimens doubtless find that their photographs sometimes give absolutely false effects, effects which, if not corrected, mislead. For example, a photograph of a specimen may show a light area where a shadow should appear, due possibly to reflected light; and shadows sometimes obliterate important details. Shadows may also cause an opposite interpretation of form, especially as to the third dimensional aspect, or what we usually term "relief." Sometimes defects are caused by interference of non-essential parts, that is, by objects that overlap and obstruct full vision; and there are many other accidental and unavoidable characteristics that affect the visibility of a subject when photographed.

The photographs we see reproduced are as a rule selected from those already made; that is, they are not always made for the express purpose for which they are to be used. Hence they represent snapshots taken here and there, sometimes for record; and snapshots after all are usually "chance" shots. Therefore, even if the subject has pertinent value as an illustration, the photograph may not be a good one because of failure at one or more of the points mentioned. As a result, we see photographs used as illustrations that are out of focus, and thus lack sharpness of details, photographs that are over- or under-exposed, and in which the lighting was unfavorable, not to mention photographs with interferences and other obliterative or obtrusive effects that either shut out or confuse details.

It is to the half-tones made from such faulty photographs that one's attention is directed with no little wonder that the latter had not been improved before engraving. Curiously, the eye is apt to dwell upon that which displeases rather than upon that which is faultless—a characteristic exemplified in glancing through proof sheets in which a slight imperfection is quickly detected; and worse than all, some people look only for defects and pass the perfect as a matter of course.

It is well known that some scientific writers do not countenance the retouching of photographs in any manner whatsoever as a legitimate means of illustrating scientific subjects. Ordinarily, and unless it is done well, retouching is unsatisfactory, especially when opaque pigment is used so that parts are covered instead of merely being intensified. When retouching is done in a proper manner there should be no deviation from nature and the results should show a sufficient improvement in the half-tones to fully compensate any author. In many photographic prints, faint tones and indistinct details can be strengthened without encroachment on, or altering of, other features. Parts may be put in focus, and detracting, confusing, and non-essential details can be eliminated without falsification of scientific fact. In short, a poor photograph, if on the right kind of paper, can generally be greatly improved by expert retouching through simply strengthening with an F or B pencil the parts that are very faintly shown, and eliminating parts not wanted by scraping them out and restoring the area. The resulting cut will always show a corresponding improvement in clearness and general effect. The photograph should be either an "azo" or "velox" print and should be unglazed.

Better to demonstrate the false premises taken by many objectors to the retouching of photographs, it might be mentioned that one of our great observatories found that many photographs, particularly those of nebulae and some of the more remote planets, did not reproduce well. The photographs were sufficient in themselves, but certain of the fainter tone qualities did not show in reproduction. These were carefully strengthened and in some instances the entire picture was copied in such a way that every tone of the original would reproduce satisfactorily. These methods were so severely criticized that they were abandoned. The objection was based on the theory that each minute granule of graphite or pigment would represent, especially in case of the nebular drawing, such vast objects that the adoption of such a method would be absurd. This view was heedless of the fact that every picture, whether drawing, painting, or photograph, is a jumble of pigment. Yet, in point of fact, the work of the artist in this particular instance insured half-tone results that would embody a complete and true image of the subject without any personal equation whatever. The point, however, in stating this incident is that the retouching (or drawing) was made only to aid reproduction and produce a half-tone cut that would show the subject with more complete distinctness than in its original form by bringing out parts that would reproduce and thus offer a better interpretation of the phenomena. Other specialists, less prejudiced, agreed it would have done exactly that, and with complete success.

The writer has no special interest in offering these comments other than his interest in the general subject of scientific illustrations. This latter has naturally drawn his attention to the defects discussed in this article and has led to mild astonishment that so many pictures are used without first having been expertly worked over and improved before they were engraved. Who has been so fortunate as to have a manuscript critically read without suggestions for improvement? Why not also be critical with photographic copy which, if well prepared and well reproduced, will tell its own story even more directly than words. In the final analysis a good photographic reproduction should be a pictorial and graphic expression and as such might well be subject to revision in a manner somewhat similar to that accorded text material.

California Institute of Technology, Pasadena, September 16, 1936.

A PLEISTOCENE RECORD OF THE PASSENGER PIGEON IN CALIFORNIA

WITH ONE ILLUSTRATION

By HILDEGARDE HOWARD

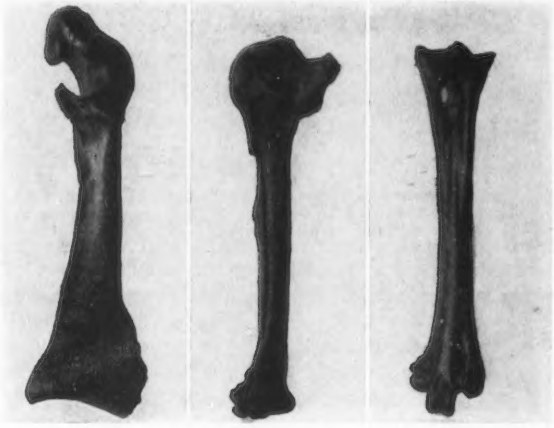
Rancho La Brea, that apparently never-ending source of information concerning the Pleistocene bird life of southern California, has yielded another important record. Six bones, representing four skeletal elements, are now identified as *Ectopistes migratorius*, the Passenger Pigeon. Though these bones have been in the Los Angeles Museum collections for years, their importance had somehow escaped notice until recently. Most of them, together with two specimens of *Columba fasciata*, had been put away labelled "pigeon." Not until two additional elements were recently found among some miscellaneous bones in the collection, were the specimens carefully studied and their significance noted. At this time comparisons were made with *Columba fasciata*, *Columba flavirostris*, and *Melopelia asiatica* as well as with *Ectopistes*

migratorius. Miscellaneous bones of the latter species were generously loaned by Dr. Wetmore from the collections of the United States National Museum.

Characters which identify the Rancho La Brea bones with *Ectopistes* are listed below, with characters of *Columba* given for purposes of contrast.

Coracoid.—L. A. Mus. no. E4960 from dump of pits 61 and 67. (1) Length 31.1 mm.; *Columba fasciata*, 35 to 39 mm. (2) Scapular facet slightly concave and well formed; *Columba* with facet flattened and indistinctly demarked. (3) Attachment of coracobrachialis muscle a rounded knob; this area in *Columba* flattened and indefinite. (4) Region of coracohumeral surface of head squared and somewhat angular; inflated and rounded in *Columba*.

Carpometacarpus.—L. A. Mus. nos. H2005 and H2006, pit unknown; no. E4959 from dump of pits 61 and 67. (1) Length 29.7 to 30.3 mm.; *Columba fasciata*, 32.3 to 34.8 mm. (2) Deep, pitlike depression on inner side at base of metacarpal I, near internal ligamentary tuberosity; pit absent in *Columba*.



a b c

Fig. 6. Bones of Passenger Pigeon from Rancho La Brea Pleistocene. *a*, coracoid, L. A. Mus. no. E4960; *b*, carpometacarpus, no. E4959; *c*, tarsometatarsus, no. G4974; all × 2.

Photograph by W. C. Nemetz. Retouched.

Tarsometatarsus.—L. A. Mus. no. G4974, pit unknown. (1) Length similar in *Ectopistes* and *Columba fasciata*, but bone much more slender in the former (average ratios of breadth of proximal and distal ends and shaft to length of bone in *Ectopistes* 22.8, 22.5, and 9.7 per cent, respectively, and in *Columba* 24.5, 24.6 and 12.0 per cent). (2) Tubercle for tibialis anticus muscle more proximal in position (distance from proximal end through tubercle, relative to length, 25 per cent in *Ectopistes*, 29 in *Columba*). (3) Proximal ligamentary attachment well developed and definitely marked; in *Columba* less developed and indefinitely marked. (4) Distance of facet for metatarsal I from distal end less than in *Columba* (average ratio relative to length in *Ectopistes* 40.3, in *Columba* 48.2 per cent). (5) External condyle less developed anteroposteriorly in *Ectopistes* than in *Columba* (relative to breadth of distal end, condyle averages 50.9 in *Ectopistes* and 58.3 per cent in *Columba*).

Ulna.—L. A. Mus. no. G8833 from pit 36; an incomplete specimen identified as *Ectopistes* on the basis of size alone. Breadth and depth of distal end each 5.3 mm., breadth of shaft 3.0, in *Ectopistes*; same measurements in *Columba fasciata*, 6.3 mm., 6.2, and 3.4, respectively.

Reports within historical time of Passenger Pigeons in California have all been traced to flocks of the Band-tailed Pigeon. All authentic records indicate that

Ectopistes migratorius was an eastern and northern species within Recent geologic time; and the only previous fossil record of the species was from Tennessee. The Pleistocene occurrence at Rancho La Brea is thus the first record of the Passenger Pigeon in California.

Whether or not this pigeon occurred in great numbers in California during the Pleistocene can scarcely be determined from the remains found at Rancho La Brea. Though only three individual birds are, with certainty, represented by the six bones, the typical western bird, the Band-tailed Pigeon, with similar forest-loving habits, is limited to two specimens, each of a separate individual. On the other hand, the Mourning Dove with a predilection for openly wooded areas, such as we believe Rancho La Brea to have been during the Pleistocene, is more abundant, with at least seventeen individuals and twenty-nine specimens. In consideration of the environmental factors, therefore, we cannot judge the Pleistocene abundance of Passenger Pigeons in this western area by the number of birds found at Rancho La Brea.

Los Angeles Museum, Los Angeles, California, July 14, 1936.

OUTSPREAD WINGS AS A SUBSTITUTE FOR PERCHING

By JOHN W. SUGDEN

The observation of gulls and a flicker doing similar unusual acts under similar unusual circumstances suggests the influence of environment and the organisms' adaptive response to that environment. "The animal we know is the product of an age-long struggle to reconcile constitutional limitations with environmental exigencies" (Haviland, "Forest, Steppe and Tundra," 1926, p. 1). The physiological and morphological characters that have developed as a response to a given set of conditions, enable the organism to fit into its particular niche to its own advantage. This specialization increases the efficiency of the organism in that particular environment, but it also imposes a limit on its dispersal. If the particular conditions persist, the organism prospers and the competition it receives is from its own kind, or from those that are similarly constituted. During periods of unfavorable circumstances individuals may be able to meet the changed conditions by altering their activities, providing the structural characters are not so highly specialized as to make survival impossible. The mental capacity of birds, even with the disadvantage of a particular structural limitation, may allow them to react to an emergency imposed by an altered environment by the use of other structures in a modified manner.

Wings in birds have uses other than for flying. They may be used for balancing, or as an aid in running, both modifications of the flying function, or as a means of striking in an offensive or defensive reaction. In courtship they may be used for display or for drumming. Some birds, notably the hoatzin, use them for climbing, many use them to provide shade and shelter for their young, and some, as the pelican, beat the water to cause a commotion and thus drive the fish ahead. The following examples, in birds, tend to illustrate the use of wings to support the body in place of the feet which in these instances are too specialized to be used for perching.

A Red-shafted Flicker (*Colaptes cafer collaris*) was observed in the process of obtaining berries from a small bush during an especially severe and long-continued winter when its usual food supply was restricted. The bird, being unable to cling to

the small twigs in the usual manner, had supported itself with its outspread wings in the bush. After eating all the berries within reach, it fluttered until a new position was obtained and then continued its feeding. A Western Robin (*Turdus migratorius propinquus*), feeding in the same bush, of course, had no such problem to meet.

In the vicinity of Great Salt Lake, the California Gulls (*Larus californicus*) have developed many new feeding habits not shared by similar gulls at the seacoasts. Here they shun the region of the inhospitable lake shores and wander far inland searching for various foods. They frequent the garbage dumps, comb the city for refuse, and systematically visit the schools at noon to pick up scraps from the students' lunches. Individual birds have been seen zigzagging along a street, inspecting both sides. They have also learned to visit the orchards in the fruiting season, and in some localities have been so persistent in their ravages that they have aroused the enmity of the farmers. The usual method employed in obtaining fruit from the trees is to hover over the branches and seize the fruit with the bill, without any attempt at alighting. Some, however, in the cherry trees have been observed supporting themselves in the thick foliage by their outspread wings while eating all the cherries within reach. Usually small flocks of the gulls visit the trees in an orchard, and three or four have been seen squatting in the tops at one time; apparently this procedure is becoming more common. This method has advantage in that many more cherries can be obtained from one position and with considerably less effort. The cherry eating proclivities of the California Gull are increasing, as more individuals, watching their fellows, add this fruit to their diet. At their nesting sites on the islands of Great Salt Lake the ground is heavily strewn with the pits.

Both the flickers and the gulls have specially adapted feet, the former for clinging to the bark assisted by the supporting tail, and the latter for swimming, through means of the webbing. In either case, the birds can use their feet for standing or walking on flat surfaces, but not for perching on small limbs or twigs. In their attempt to supplement their regular diet with an unusual food, the orthodox method being inadequate, the wings have been called upon to function in place of the feet. The specialization of the foot structure has rendered it inadequate for general service, so, in these instances, the individuals have learned to use another structure in an altered manner to accomplish the same, or similar, result.

The use of the outspread wings, as a substitute for the perching function, is not a common procedure among birds, nor is it the usual habit of certain species. Only during periods of unusual conditions, such as a long severe winter or overcrowding with consequent competition for food, is the mettle of the individual tested. Under favorable conditions even the weakling can survive. Those that have the superior intelligence to overcome the handicap by resorting to an abnormal method of procuring food, and by thus doing to open up a new supply, increase their chances of survival. If this method becomes the usual routine, developing into habit by repetition, the basis for a change in structure might be laid.

University of Utah, Salt Lake City, Utah, June 2, 1936.

WINTER NOTES ON SOME NORTH AMERICAN BIRDS IN THE TROPICS

By LOYE MILLER

It was my good fortune in 1936 to spend ten weeks of the late winter on the coastwise waters between San Pedro, California, and Panama, during which time the bird life was a major interest. Mr. Frank Richardson and I left San Pedro on the United States Navy Transport "Vega" for Panama. We transited the Canal eighteen days later, were picked up at Colon by the "Nokomis" of the United States Hydrographic Service and were taken 130 miles westward across the Mosquito Gulf to Chiriquí Lagoon, on the Caribbean coast of Panama near the Costa Rican border.

Here we occupied quarters on the large houseboat of the Hydrographic Service, enjoying every facility in transportation along the coast and among the islets with the daily survey parties that were engaged in mapping the area for some twenty-five miles about. We occupied this station until April 4, leaving on that date for the return journey to San Pedro.

The courteous officers and the enlisted men of the navy took pains to give us every possible assistance—a contribution which is most gratefully acknowledged. Without their aid we would have been seriously handicapped.

Procellariiformes.—My confidence in the albatrosses was somewhat rudely shaken during our southward journey. On two previous journeys along the same route, the Black-footed Albatross (*Diomedea nigripes*) was not uncommon off the coast of Lower California, but both these trips were taken in May (1896 and 1925). The birds followed our ship as scavengers on both occasions.

During our southward journey in February, no albatrosses were seen at any point. On the return journey, in early April, they were present in small numbers, though never did they pay any attention to the ships which were not infrequent along the traffic lane. Are they busy at their breeding grounds on remote islands during the earlier months, to disperse again only in the later spring and summer season? The latitude of Magdalena Bay, Lower California, was the most southerly point at which they were noted.

Petrels and shearwaters were an insignificant factor in the avifauna and were never seen in numbers such as appear during migration along the California coast. The several species seen could not be absolutely identified.

Pelicaniformes.—*Phaëthon aethereus*. Red-billed Tropic-bird. My greatest surprise in connection with tropic-birds came from their extreme scarcity. In relation to the number of days spent on the water, I saw more tropic-birds on the southern California coast during the preceding summer than were seen in the tropics where conditions appeared to be ideal.

The Red-billed Tropic-bird was first seen off Cape Corrientes, Mexico. A bird was sitting on the surface of the sea and rose readily as the ship approached, again demonstrating for me the ability of these birds to take wing in calm weather. A single Yellow-billed Tropic-bird (*Phaëthon lepturus*) was seen on the Caribbean coast. Though there are numerous islets for possible nesting sites in the Gulf of Panama and in Chiriquí Lagoon on the Caribbean side, not more than a dozen tropic-birds of the two species were seen during ten weeks of observation, largely in tropic-bird range.

The food supply was certainly adequate as proven by the incalculable numbers of pelicans and cormorants that streamed in wavy lines across the Bay of Panama.

Pelicanus occidentalis, ssp. Brown Pelican. Murphy (Oceanic Birds S. Amer., vol. 2, 1936, p. 807) says, "As regards the forms of the Brown Pelican occurring in North and Central America, the West Indies, and the northerly tropical coasts of South America, I have not yet been able to come to any final taxonomic conclusion." I may be pardoned, therefore, if I do not use "brown pelican" subspecifically. The birds were seen in all manner of places along both shores and through the Canal. The most impressive fact that was noted repeatedly was their ability to grasp a perch with the totipalmate foot.

Our California birds seem so much a part of the bare spray-drenched rocks, or the flat sand bars, that it seems incongruous to think of them as perchers. In Chiriquí Lagoon there were many small islands crowned with thick jungle, but bastioned with bare rocks. The pelicans deserted the rocks to sit in rows on the flexible fronds of the coconut palms!

Fregata magnificens rothschildi. Man-o'-war-bird. Frigates were in evidence more or less at all times, south of Magdalena Bay. Like the pelicans, they follow the fresh waters through the Canal, though their principal victims, the boobies, were not seen on fresh water. Gonads of those taken were large and males had the brilliant colored throat pouch, but no breeding colonies were found. The birds were a daily source of fascinating interest to us, but only a bolder pen than mine would venture to add to the literature on their wonderful powers of flight.

Ciconiiformes.—I was greatly surprised at the absence of the Wood Ibis, for this species is common in El Salvador. The extensive mangrove swamps in the several brackish water areas visited produced none. The fresh waters of the Canal on both sides of the divide, and the Cricamola River and smaller streams draining into Chiriquí Lagoon, seemed ideal terrain for these storks and for various of the true ibises, but apparently none of these species entertained such opinion. No representative of the family was seen.

Herons, on the other hand, were fairly abundant. Louisiana, Snowy, Little Green, Little Blue, and Yellow-crowned Night herons all were collected and the larger American Egret was observed. The Boat-billed Heron did not appear. Two species, *Egretta thula* and *Florida caerulea*, were often associated in small groups and were made the object of special scrutiny. The Little Blues were either in full adult plumage or else in spotless white, none being in transition stages either of feather or of naked parts. I saw none in a stage that duplicated those birds several times seen at Point Mugu, California, and identified as Little Blue Heron (Miller, Condor, vol. 36, 1934, p. 178). Both the Panama and the California herons had yellow-green legs, but in the case of the Panama birds, the color was more uniform along the whole length of the shank. I find no record of greenish yellow on the legs of Snowy Herons, and certainly I saw none with greenish legs in Panama. Is there a stage in the youth of the Snowy Heron when the legs are greenish instead of black? In the meanwhile I feel that *Florida* should be placed on the hypothetical list for California.

Snowy Herons were extremely shy even in the very sparsely settled vicinity of Chiriquí Lagoon. The fully white and the blue phases of the Little Blue were, on the other hand, quite easy to approach, remaining behind even when the Snowy Herons had flushed from the mixed group. This difference in behavior strongly suggests persecution by man as the determining factor.

Laridae.—Much interest came from noting the varying extent of southward migration among several of the species of gulls. Also noteworthy was the fact that during the winter some of these birds live well offshore for considerable periods without contact with the land. At least they appeared to do so along the traffic lanes.

Larus occidentalis wymani. Wyman Gull. This gull appeared to be entirely resident. It was common at all times about California ports as well as offshore. It was the dominant gull during the first day out from San Diego. They did not follow the ship a great deal, but sat about on the surface of the water or came to meet us from farther out. Individual birds were about the ship for an hour or two, then left, to be replaced by others. After nightfall of the first day, no Wyman Gulls were seen, although a single bird, presumed to be the Yellow-footed Gull (*Larus occidentalis livens*) from the Gulf of California, was seen off the mouth of the Gulf.

Larus californicus. California Gull. Having lost sight of the Wyman Gulls on the previous evening, we were interested to see a delegation of gulls coming to meet us at sunrise the next morning (February 13) as we approached Cape San Lazaro. These were all California Gulls. We were sixty miles offshore with no land visible (to human eyes). The gulls were "rafting" in great numbers and could be seen at sunset settling on the water far to seaward. The Californias continued for two days to be the dominant gull, until the nightfall of their second day. The following morning off Cape Corrientes they were absent and were not seen again. On our return trip (April 12) they had seemingly all gone north to breed.

Larus atricilla. Laughing Gull. All through the previous day, running southeast from Cape Corrientes, no gull of any species was visible, but on February 16, off White Friars' Rocks, we were met by hosts of Laughing Gulls, and the species was with us continuously from there on to the Gulf of Tehuantepec, two days run.

No gulls of any species were seen as we crossed the Gulf, nor yet as we coasted the Central American republics until we rounded Cape Mala, our farthest point south. Here the Laughing Gull again became an abundant bird. At Balboa they were everywhere about the docks in both juvenal and adult winter plumage. Within a hundred yards of the wharf, a Duck Hawk snatched one from a flock of this species, fluttered with it to the shore, and there proceeded to pluck it.

As we started northward through the Canal the gulls all left us at tidewater and were seen no more until our return journey began. There were no birds of this species wintering north of the Isthmus in our area.

During the next six weeks we were in and out of Chiriquí Lagoon on the Caribbean coast of Panama, an ideal place for gulls, but a few terns were the only larine birds seen there. We left the Lagoon on April 4, and immediately outside the headlands found Laughing Gulls in abundance, all in adult spring plumage. They were common the rest of the way into and through the Canal to the Pacific side, on fresh water or salt, in places where they had been entirely lacking in February. There appeared also a marked segregation of the adult birds. On the open Caribbean coast all birds were adults in breeding plumage. As we passed southward into the Canal, the proportion of juvenal birds increased until at Panama Bay they outnumbered the adults. From the Pacific end of the Canal we continued east of south through the Bay of Panama until well into the night, with Laughing Gulls attending us until dark. Before morning we were headed north of west, up the Pacific coast, and saw no more of the Laughing Gull.

These confessedly incomplete data would suggest a divided winter range for this gull. The western group did not go south of the Gulf of Tehuantepec, about 15° north latitude, nor east of 95° west longitude. The eastern group were all south of 9° and

east of the 80th meridian. As the spring season came on, all the western group had left the winter range before April 10, whereas in the eastern group, only the adult birds had crossed the Isthmus to the Caribbean side by April 6. Do the western birds have a shorter migration into Texas and Louisiana, upon which they embark at an earlier date to nest at a different time and place from the eastern group? Some of our western passerines have developed subspecific differences by just such a segregation during the breeding season. Too bad the bird-banders haven't a house-boat station thirty miles off the coast of Guerrero, Mexico!

Larus glaucescens. Glaucous-winged Gull. A few of this species were seen off Magdalena Bay, and on southward to the mouth of the Gulf of California off Tres Marias Islands.

Xema sabini. Sabine Gull. These gulls were not seen in February, since their normal wintering area is farther south than the farthest point south which we visited. In April, however, they were moving northward and were several times seen on April 11 and 12 north of Tehuantepec. In all instances, they were moving steadily up the coast without wandering about in gull fashion. The migratory urge was evidently in quite definite control.

Other larine species—terns and jaegers—were observed, but not out of their ordinary ranges for the season.

Charadrioidea.—Shore birds were remarkably few during our stay in Panama. The Spotted Sandpiper (*Actitis macularia*) was almost ubiquitous along the banks of the Canal wherever a foothold was offered and upon the many beaches of Chiriquí Lagoon. It was evidently stationed for the winter. A single Black-bellied Plover (*Squatarola squatarola*) appeared during our last day at the Lagoon (April 3). The bird had not assumed the summer plumage.

Phalaropus fulicarius. Red Phalarope. Several flocks were seen February 13 off Magdalena Bay, but the greatest numbers were in the Gulf of Tehuantepec. Here they were rafting in uncountable numbers all during our transit of the Gulf. They were not migrating, but seemingly were in winter quarters out in the open gulf—a notably stormy area in the annals of the human mariner. A scant dozen birds were seen in this area on the return journey in April. Numerous small flocks were seen in the mouth of the Gulf of California, but the great majority of the birds had left the area where they had been so abundant.

Many other northern birds were seen which were not out of the ordinary, either in range or behavior, yet they furnished items of great personal interest. The Broad-winged Hawk (*Buteo platypterus*) was the most abundant predator seen at Chiriquí Lagoon. They sat about quietly in the forest, were very fat, and had grasshoppers in their stomachs. The Osprey was fairly common, but extremely shy and unapproachable. A flight of Turkey Vultures (*Cathartes aura*) was seen at sunset, at least a thousand of them in a dense spiraling swarm reaching from the treetops to a great height. They continued in air until dark, and probably set out for the north on their regular spring migration (March 6). And of all surprising things—a *flock* of Kingbirds (*Tyrannus tyrannus*)! I counted forty of them sitting silently in one small tree (March 19), much like a winter group of waxwings. These noisy and pugnacious individualists were certainly under a spell strange to me, but probably quite normal to their annual cycle of instincts. So was I called upon to readjust my concept of *Tyrannus* and to plug in on the "hormonic" circuit. Such things add to the charm of field work.

University of California at Los Angeles, October 24, 1936.

A REVIEW OF THE RACES OF THE MOUNTAIN QUAIL

WITH MAP

By A. J. VAN ROSSEM

The Mountain Quail (*Oreortyx picta*) is a species whose range has been reduced materially, probably by other than human agency, within fairly recent times. Two thousand or more years ago its range extended east to New Mexico, where its bones have been found in cave deposits in association with human materials of the "Basket-maker" period (see Wetmore, Condor, vol. 34, 1932, pp. 141-142, and Howard and Miller, Condor, vol. 35, 1933, pp. 15-16). What caused the present restriction to the Pacific coast area may never be determined, nor is it conceivable that anything will ever be known concerning the plumage characters of the New Mexico birds.

Nomenclaturally, the history of the Mountain Quail began over a hundred years ago when Douglas, in 1829 (Philosophical Mag., n.s., vol. 5, no. 25, p. 74, and Trans. Linnean Soc. London, vol. 16, p. 143), described the species from the "interior of California as far as 45°." Gould, in 1837 (Icones Avium, vol. 1, pl. 9, and Proc. Zool. Soc. London, vol. 5, no. 52), redescribed and renamed the species, from "California," from specimens collected by Douglas which reached England after the latter's death. Anthony, in 1889 (Proc. Calif. Acad. Sci., vol. 2, series 2, p. 74), named a race from Lower California and, finally, Oberholser, in 1923 (Auk, vol. 40, pp. 80-84), revised the nomenclature of the three geographic forms then recognized. This last paper was an important one, for it determined definitely the type localities (actually in interior Oregon) of the birds described by Douglas and Gould. Since that time the species has not been investigated in a systematic sense, other than that the names of certain intergrades have, naturally enough, been shifted about to conform to the evidence at the disposal of one worker or another.

Over a period of several years, critical series of Mountain Quail have been acquired by the Dickey collection at the California Institute of Technology and by the Natural History Museum at San Diego. I refer particularly to a splendid series of *Oreortyx picta confinis* from the San Pedro Mártir and Sierra Juárez mountains in Lower California; but certain near-topotypes of *Oreortyx picta picta* from south-central Oregon have also proved to be of exceptional interest. Altogether, over 400 specimens have been examined, and 153, representing critical localities and plumages, have been assembled and compared at one time. Since an understanding of seasonal and sex differences is vital to a proper appreciation of the geographic variations, a summary of these is here set forth. Age, apparently, is of little moment, for once the postjuvenal plumage is fully acquired, there seem to be no differences of consequence between immature and adult birds, save for the concealed juvenal primary coverts which are carried until the first annual (first postnuptial) molt.

Among series from the same locality no sex differences are observable in the coloration or depth of tone of the upperparts posterior to the hindneck and upper back. However, it is obvious that in females the brown of the dorsum extends forward and suffuses the gray of the hindneck to a greater extent than in average males. Ventrally, the red of the posterior underparts of females is slightly, but definitely, paler, and is less blackish laterally. The red in females is also less extensive, partly because of the greater amount of white on the median underparts, but chiefly because of the wider white barring on the flanks. This latter is a striking and uniform sex character. The

elongated crown feathers average shorter in females, but there is considerable individual variation in this respect.

The freshly acquired, fall plumage retains its true color values for a relatively short time. Dorsally, the whole plumage is affected by time and abrasion, the brown areas to the greatest degree, the gray areas least. Anteriorly, the brown shading is gradually lost, resulting in a clearing up, or intensification, of the gray of the hindneck. The brown of the upperparts becomes paler and grayer to a degree which may cause spring birds of *palmeri* to be almost indistinguishable from fresh fall *picta*. Similarly, worn *picta* may be as pale and gray as fresh *eremophila*. Neglect to appreciate seasonal variation has been responsible, in great part, for the failure in the past to recognize certain geographic variations which are readily seen when fresh-plumaged birds are compared.

Ventrally, there appears to be little seasonal change, although the mechanical effects of abrasion, in extreme cases, may materially reduce the amount of red on the posterior underparts and thereby expose the plumbeous basal portions of the feathers.

Dorsally, *Oreortyx picta* is darkest and brownest in the humid northwestern portion of its range, and it becomes paler and grayer in the more arid eastern and southern parts. At the extreme southern end of its range, in Lower California, there is a darkening of the gray, a feature which is common to several other subspecies of birds from the same region.

Ventrally, in contradistinction to the upperparts, the posterior underparts are paler and redder in the humid northwest, and darker, with increased lateral blackness, in the south.

The elongated crest feathers average shortest in the northwest and longest in the southern Sierras; but individual variation, combined with rapid wear, is such that this differentiation is more in the nature of a general trend than a character which can be used to apply to individual specimens.

There are four group tendencies which mark the transition from the dark, brown-backed bird with paler-colored underparts in the northwest to the more plumbeous-backed population with darker underparts in the mountains of northern Lower California. Four geographic races or subspecies should, therefore, be recognized. From north to south these four steps are described, comparatively, from individual male specimens, selected to represent the average characters of each population. The color terms in quotation marks are from Ridgway's "Color Standards and Color Nomenclature."

Oreortyx picta palmeri Oberholser. Northwestern Mountain Quail (Mountain Quail of the A. O. U. Check-list)

Subspecific characters.—No. 26446 Dickey collection; ♂ adult, Tillamook, Oregon, December 30, 1926; collected by A. Walker.

Compared with *Oreortyx picta picta*, upperparts "bister" instead of "olive-brown," this color extending forward to suffuse strongly the gray of the hindneck; scapular stripes strongly tinged with buff or pale brown instead of being white or nearly so; posterior underparts paler red, "mahogany red" instead of "chestnut" or "bay," and lateral blackness reduced to a minimum for the species; gray of head and chest slightly darker and less pure.

Range.—Humid coastal strip of western Washington and western Oregon, south along the coast ranges of California to San Luis Obispo County. Introduced (A. O. U. Check-list) on Vancouver Island.

Remarks.—Palmeri is found in its best developed form in extreme western Washington and extreme western Oregon, that is to say, west of the outer coast ranges. Relatively few Mountain Quail in California, even from the extreme northwest coast, possess the maximum of characters shown by more northern birds, although selected specimens do so. Mostly they show varying

degrees of paleness or grayness, and to the southward these tendencies increase. However, there is no geographical uniformity of characters within the range of *palmeri* in California. As above stated, some individuals are very similar to typical northern birds, others are scarcely to be distinguished from *picta*, while intermediate examples are frequently encountered. There would seem to be no question that many more of the *picta* type are found in the inner coast ranges than on the coast, but even in the interior it is possible to find individuals which appear to be typical *palmeri*.

The mixed and unstable character of the Mountain Quail of northwestern California might be taken to indicate recent fusion of coastal and Sierra Nevada stock. It is known that at least one Sierran subspecies (*Cyanocitta stelleri frontalis*) has reached the coast (Mailliard, Condor, vol. 24, 1922, pp. 127-133). Mr. James Moffitt writes me that the grouse (*Dendragapus*) at a point only twenty miles from the coast in southern Mendocino County show a condition similar to that seen in the Mountain Quail; certain individuals seem to be *fuliginosus* but others appear to be similar to *sierrae*.

Oreortyx picta picta (Douglas). Sierra Nevada Mountain Quail (Plumed Quail)

Subspecific characters.—No. 26217 Dickey collection; ♂ first winter, Willow Creek, Ironsides, Malheur County, Oregon, December 17, 1919; collected by A. Walker.

In depth of color, dorsally, nearest to *Oreortyx picta confinis*, but "olive brown" instead of grayish "mummy brown"; gray of hindneck less pure and suffused with color of dorsum; median underparts between "chestnut" and "bay," not "claret brown"; flanks redder and with less black on anterior portions. Compared with *Oreortyx picta eremophila*, general coloration darker and browner dorsally; underparts paler and redder, with less black on anterior portion of flanks.

Range.—South-central Oregon (east of the Cascades) south through the Modoc region and the Sierra Nevada of California to about latitude 37°30′N and east to immediately adjacent parts of western Nevada.

Remarks.—In marked contrast to the variable nature of *palmeri* in the coastal mountains, the present race maintains stable characters over its entire range. The transition from *picta* to *eremophila* takes place at about the same latitude as that of the northern and southern Sierran races of the Dusky Grouse. *Picta* apparently extends slightly farther south on the western slope than on the east.

Oreortyx picta eremophila, new subspecies. Desert Mountain Quail

Type.—Male adult, no. 17324 Natural History Museum, San Diego; Lang Spring, Mountain Spring Cañon, Argus Mountains, Inyo County, California, elev. 6000 feet; collected by A. J. van Rossem on October 27, 1935.

Subspecific characters.—Except for the posterior and lateral underparts, this is the palest of the races of the Mountain Quail. Back, wings, and posterior upperparts "deep olive," thus paler than *confinis*, and grayer as well as paler than *picta;* posterior underparts "claret brown" medially, with maximum amount of black on flanks. In this last respect *eremophila* and *confinis* are alike and differ from the lighter and more reddish flanked *palmeri* and *picta*.

Range.—From about 37°30′ in the Sierra Nevada of California and adjacent portions of extreme western Nevada, south through the mountains of southern California to the Lower California boundary.

Remarks.—Both of the preceding (northern) races, *palmeri* and *picta*, are, in fresh plumage, brown-backed birds with relatively light-colored, reddish underparts. The southern races, *eremophila* and *confinis*, are more gray-toned dorsally and have darker-colored underparts which tend to be black on the anterior part of the flanks. Of these latter two, *eremophila* is the paler, in fact, it is the palest race of the species; hence it certainly is not a transitional form. If that dubious distinction is to be conferred on any race it must be on *picta*, but the great extent of territory inhabited by *picta* in stable form is significant. Intergradation between *eremophila* and *confinis* is discussed in connection with the latter.

Oreortyx picta confinis Anthony. Lower California Mountain Quail (San Pedro Quail)

Subspecific characters.—No. 10865, Natural History Museum, San Diego; ♂ adult, La Joya, San Pedro Mártir Mountains, Lower California, Mexico, September 30, 1926; collected by L. M. Huey.

Very similar in depth of coloration to interior Oregon and northern Sierra Nevada specimens of *Oreortyx picta picta*, but brown of upperparts grayer and slightly darker, grayish "mummy brown" instead of "olive brown"; gray of head, neck, and chest slightly darker and purer, scarcely, or not at all, tinged with brownish on the hindneck; posterior underparts darker ("claret brown"), with maximum amount of black on anterior parts of flanks. Compared with the geographically adjacent *Oreortyx picta eremophila*, coloration darker throughout, except for the posterior underparts which are equally dark in both. In *confinis* there is perhaps a more abrupt line of demarcation between the gray of the hindneck and the dorsum than in any of the other races.

Range.—The mountains of northern Lower California, from the Sierra San Pedro Mártir north, through the Sierra Juárez, to the southern California boundary.

Remarks.—Anthony's description was based on late April specimens. He correctly emphasized the grayness of the race, but the paleness which he also gave as a character was obviously due to the season at which his birds were collected. I am not able to verify the supposed occurrence of a thicker bill in this race.

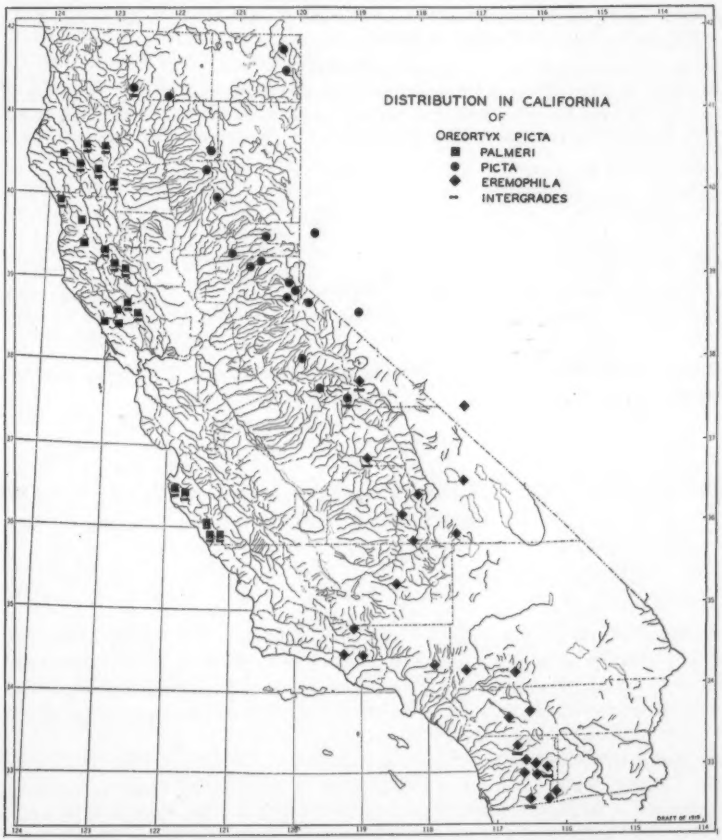


Fig. 7. Map showing distribution of races of *Oreortyx picta* in California.

As before stated, worn *confinis* are essentially like fresh *eremophila* in color. Several factors have led, therefore, to the confusion of *confinis* and *eremophila*. Lack of comparable material, particularly fresh *confinis*, failure to give proper value to the seasonal changes in all races in the matter of dorsal coloration, and the "pale" coloration originally ascribed to *confinis*, are all probably in part responsible for the action of one reviser who included southern California in the range of *confinis* and for the contrary opinions of other authorities who believed that *picta* extended to the Lower California boundary.

It may be worth while again to emphasize that *confinis* is not a pale race. It has the dark coloration comparable to that shown by most of the subspecies of the San Pedro Mártir faunal area, among

which may be mentioned the local races of valley quail, wren-tit, bush-tit, brown towhee, spotted towhee, and rufous-crowned sparrow.

Intergradation between *confinis* and *eremophila*, which takes place in extreme northern Lower California and southern San Diego County, tends to be "spotty," but there can be no doubt that the average north of the boundary is closer to the latter form. In a series of twenty-seven specimens from San Diego County I find four which by every test are *confinis*, if one cares so to identify them individually. These are from La Puerta Valley, the Laguna Mountains (Nat. Hist. Mus.), and Campo (Dickey coll.); but other specimens from the same localities are clearly *eremophila*, or else are intermediates. Under the circumstances it seems doubtful if *confinis* can be considered to occur north of the California-Lower California boundary.

MEASUREMENTS

Although it was at first thought that southern birds were larger than those from farther north, this was not borne out by measurements of large series. There is, however, a slight lengthening of the crest to the southward from *palmeri* to *eremophila*, as the following measurements (in millimeters) show.

	Males			Females		
		Extremes	Average		Extremes	Average
10 palmeri		39-73	(65)	14 palmeri	36-57	(51)
17 picta		59-72	(67)	13 picta	43-60	(55)
15 eremophila		70-87	(73)	12 eremophila	56-70	(58)
25 confinis		60-73	(63)	14 confinis	53-62	(55)

In conclusion I wish to thank the Museum of Vertebrate Zoology for the privilege of examining its entire series of mountain quail and for the outline map upon which the ranges of the races are shown.

Dickey Collections, California Institute of Technology, Pasadena, California, November 5, 1936.

NOTES ON THE INTRODUCED SKYLARK IN THE VICTORIA DISTRICT OF VANCOUVER ISLAND

WITH MAP

By G. D. SPROT

Because little has been published on the Skylarks (*Alauda arvensis*) of Vancouver Island since their introduction over thirty years ago, the following observations made in the course of an exceptionally open season, from September 10 to December 28, 1935, may hold something of interest. The area under observation represents about one-third of the range of the Skylark on the Island.

The first introduction of the species was made in 1903 when the British Columbia Natural History Society, with financial assistance from the Provincial Government and a number of island residents, placed an order with a New York foreign bird importer for 200 Skylarks and a few other species of European birds. These birds left England about the middle of October, arriving on the Island late in November. The losses en route were heavy among the other species, but the hardy Skylarks, although badly cramped in two small cages, stood the journey with the loss of but two birds.

The exact number of Skylarks liberated on Vancouver Island unfortunately is unknown. The minutes of the Society give the number as 100. According to the correspondence, the secretary could only make "as fair a division as was possible under the circumstances" of the 198 survivors of the journey, and about one-half was shipped directly to the mainland, the remainder being released in aviaries in Beacon Hill Park. Late in December this "remainder" was made up into "parcels" (the number in each

parcel was not recorded) and certain of these were forwarded to Duncan, North Saanich, Colwood, and Cedar Hill. Some were liberated in fields adjoining the Jubilee Hospital and some at Beacon Hill. Those released at Duncan, Colwood, North Saanich, and Beacon Hill soon disappeared, but at least a few of the Cedar Hill and Jubilee Hospital birds survived.

Fresh blood was introduced by the Society in 1913, when 49 additional Skylarks were distributed as follows: 34 at Rithet's Farm, 9 at Lansdowne Road, and 6 at Cadboro Bay. Unfortunately no records were kept of the increase, and although Skylarks were found by me in 1935 in isolated groups north as far as the North and South Saanich boundary line (about 14 miles north of Victoria), it is impossible to state as to whether these Saanich birds were from those released in Victoria or, as I believe them to be, from overlooked survivors of the early North Saanich introduction. (On July 14, 1936, I found about eight Skylarks as far north, on Saanich Peninsula, as Sidney. The owner of the land assured me that these birds were present in winter as well as in summer and had been in that area for a number of years.)

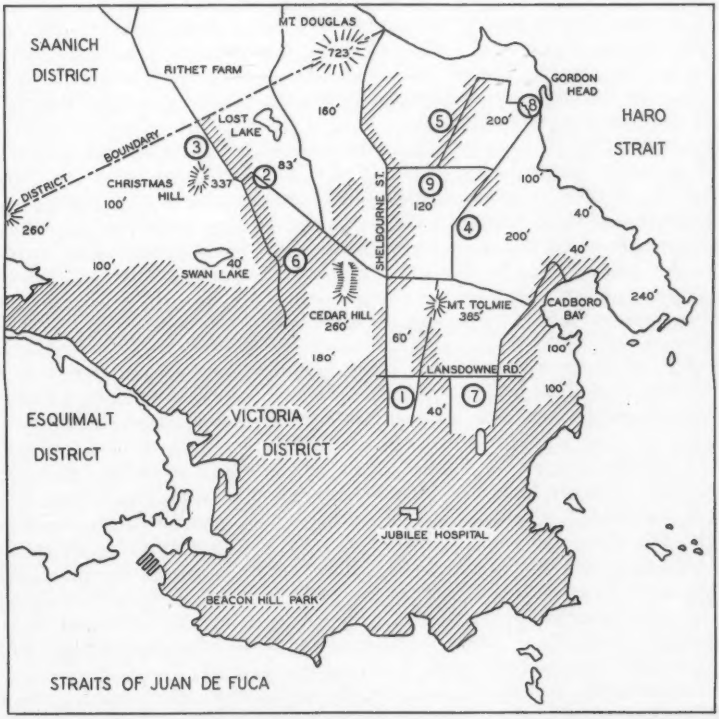


Fig. 8. Map showing distribution of Skylarks in the vicinity of Victoria, Vancouver Island, British Columbia. Shaded areas signify city and suburbs; numbers in circles indicate groups of Skylarks.

The Victoria District in which these observations were made is the southernmost district of Vancouver Island. It consists of a lowland peninsula, roughly twenty-five square miles in area. Noticeable features of its landscape are several glacially rounded hills or monadnocks varying in height from 300 to 700 feet which, with a number of narrow drift ridges of 100 to 200 feet, break up the lowlands into small parallel valleys running north and south. The city and suburbs of Victoria cover, in solid formation, about half the entire district, and extensions spread out across the remaining cultivated area to, and beyond, the district's northern boundary. Market gardening, fruit growing and dairying are carried on in this cultivated section.

Throughout the greater part of the district today, oaks (*Quercus garryana*) predominate. Douglas fir (*Pseudotsuga taxifolia*) occurs along the northern boundary in the vicinity of Mt. Douglas (723 feet elevation) and extends as a patchy coastal fringe south from Gordon Head to Cadboro Bay and along the eastern slope of the gravel ridge (200 feet), terminating in Mt. Tolmie (385 feet). On the western slope of this ridge are to be found perhaps the majority of the Skylarks in the district. Along the summit of the opposite slope of this long valley, down which runs Shelbourne Street, oaks crop out thickly, and, with occasional parklike clearings, extend north to Mt. Douglas, south to the city, east to the coast, south of Mt. Tolmie, and west to the valley of North Quadra and Christmas Hill (337 feet). Near this hill a few stubble fields occur and, consequently, a fair number of Skylarks. To the west of Christmas Hill firs again show up among the oaks, becoming increasingly common as the highlands are reached near the northwest boundary.

After a week or two spent in locating the whereabouts of the Skylarks, it became obvious that their major habitat in winter was grain stubble and that the Victoria stubbles might be divided into three types: (A) The most popular with Skylarks; second growth crops of wheat or oats, such as result from the dairyman's method of cutting early for the silo or for feeding stock in summer.. (B) Fairly popular; light stubbles, where on the poorer soil of the highlands the crop has matured and has been harvested early, and over which a considerable amount of grain has been spilt and a growth of weeds has gone to seed. (C) The least popular; coarse stubbles on rich soil that has been cleanly farmed; for the most part seeded to clover, the grain having served as a cover crop. Other types of cultivated land, such as fall-sown wheat, were also frequented, but it was later observed after tramping many acres of such land that fall-sown wheat was frequented only in one area where stubble had almost given out.

Once the major habitat was discovered, observations were simplified, and by the middle of October the greater number of the Skylarks had been located and the stubbles mapped. It was learned from the taking of a number of censuses, that several stubble fields, if separated by a hedge or road, were usually frequented by a single group of Skylarks. But, if two such stubble fields were separated by a twenty-acre pasture, then it was quite likely that the fields would be held by two distinct groups of larks. This was the case in the Tyndall Avenue and North Quadra areas where, after a few censuses had been taken over several stubble fields, it was noted that the number of Skylarks frequenting each stubble field that was separated from the others by a distance of but 100 to 200 yards remained constantly at about the same level.

My observations indicated that each group was closely attached to its own area in winter. Rather than desert an area to which they had become attached, some Skylarks appeared to be adapting themselves to the changes brought about by suburban extensions and the consequent retirement of dairy farmers from the area. What suggested this perhaps more than anything else was the difference in the habits of the

birds in areas 1 and 7, compared with those in all the other regions. Area no. 1 was near the Jubilee Hospital, now an airport, where the birds of the first introduction were released and where they were known to have survived; and 7 was the Lansdowne Road area where 9 birds were released in 1913. Both areas are now almost enclosed by buildings. Number 1 had, I am told, many stubbles at one time, but these dwindled as the suburbs of Victoria extended, until, at the time my observations were made, only the airport had a stubble, and that a poor one of about 6 acres. Number 7 had probably always been what it is today, a Chinese market garden with perhaps an occasional stubble; but at the time these observations were made there was none. Both areas, however, had large acreages of fall-sown wheat. The birds of no. 7 preferred weedy arable land to sprouting wheat, for I never found them on the latter in any of its stages of growth. Those of no. 1, a much larger group, were forced to rely on newly sown or sprouting wheat, and weed seeds, as an alternative to moving out to the next nearest stubbles two miles north.

On November 28, when visiting no. 1, I found that germinating wheat was no longer available. No birds were to be found on the ground grown to wheat and but 22 on the now near-bare stubble. Instead of searching, as I should have done, the remaining rough-grass section on the borders of the airport, I felt convinced that, since area 7 was only a quarter of a mile to the east, and since it included several acres of lately sown wheat, the missing birds would be found there. But after working that area thoroughly, I found only 7 birds. On my next visit to no. 1 I found a small acreage had been freshly seeded to wheat, and on walking on it, I raised the usual number of Skylarks—forty odd. I could not be certain whether or not the missing larks of November 28 had remained in their own area and had been overlooked, but since the freshly sown wheat section of no. 7, so close at hand, had not been taken advantage of, it seems hardly likely that they had travelled north to the next nearest stubble area and returned within a fortnight. (See census table.) Thus I feel safe in assuming that they had not left their own area.

What might have happened had the season not been favorable to this further sowing of wheat in no. 1 is problematical. I was told by a resident that he had never been able to entice larks to a food tray in close proximity to the house, but that the larks in hard weather would occasionally seek food in vacant lots or back yards if not too enclosed. It is not suggested that individual Skylarks never join up with those of other groups, for it was often suspected that they did do so. On December 14, when taking a census over several areas, I found but 1 bird left out of 8 in no. 8, which area had been ploughed since my last visit. There were 8 additional larks in no. 5; 7 of these I have every reason to suspect were the missing birds of no. 8. I was always inclined to treat small variations in the numbers of birds in the large areas as errors in the counts, but the variations in numbers occurring at times within the smaller groups, 3, 6, 8 and 9, could not be so satisfactorily accounted for.

It may be found later that my group divisions are too fine and that all outlying small groups are but outposts of the main group in the same valley. Nevertheless, in treating each large group as a whole I feel certain that it is stationary in its own area, which may be the whole of a small valley and the slopes thereof. Such large groups at least are stationary in winter, if not throughout the whole year.

Before the middle of November it was only by chance that an accurate count could be obtained for groups 1, 4 and 5 on account of the erratic behavior of the Skylarks. A change in their habits became noticeable about November 19. Formerly, on being disturbed, they had risen one by one, or in little flurries of 3 or 4, and, while some flew

low, either dropping back into the stubble or pursuing each other to the far end of the field, others would soar to about thirty feet, twittering weakly, to be playfully lunged at by some rival songster and driven to earth.

After the middle of November the birds appeared to sober down. They stayed closer together, and after one or two had been disturbed, the others would often rise with them and all would remain in the air. Eventually, if the field was fairly small, after circling it several times at a considerable height, they usually would fly off out of sight. If the area was a large one, they departed in much the same manner; only rarely would a small party move off by itself without the usual circling; more often, however, each party as it rose from its corner of the field would join the others in the air, whereupon the whole group moved off as a unit. They usually returned in about four minutes, sometimes before I had left the field, yet on rare occasions they would absent themselves for fifteen minutes or more; but they always returned.

If the weather was mild and the wind light, they soared to a great height and drifted to a considerable distance until lost in the mists. While drifting in this way, they would occasionally pass above the stubbles of other groups, and although they sometimes landed temporarily on nearby pastures, they were never seen to land within the valley occupied by any of the other large groups. Thus census-taking after November 19 was a fairly simple matter, for the larks could be counted as they rose, again while circling, and yet again as they returned. When a large group returned, a quick count as they came into view was necessary, for although they would at times circle and spread before alighting, it sometimes happened that as they reached the home field, numbers of them just fell to the ground like hailstones.

Estimates based on attempted counts had to serve as a guide to the numbers of Skylarks present in September and October, although on rare occasions a satisfactory count was secured during these months. Excepting group 3, most of the small groups were not discovered until November when the district became better known and the cultivated areas more carefully explored. The following list includes actual counts only.

	October	November	December
Group 1	44	22	41; 45; 43
Group 2	----	26	33; 27
Group 3	14	14; 14; 14	17
Group 4	----	32; 47; 44	38
Group 5	----	37; 37	45
Group 6	----	2	5; 1
Group 7	----	7	8
Group 8	----	8	1
Group 9	----	11	10; 6

Names of groups: 1, Lansdowne Airport, near the Jubilee Hospital; 2, North Quadra Street, Cedar Hill; 3, near Rithet's Farm; 4, Municipal Airport; 5, Tyndall Avenue; 6, Lakehill Recreation Park, Cedar Hill; 7, Lansdowne Road; 8, Gordon Head; 9, Feltham Road.

If the smaller groups, as was suggested earlier in this paper, are but outposts of the larger groups, then no. 6 would be included with 2, and 8 and 9 with 5, giving five distinct groups for the Victoria District. Taking the highest count of the birds in each group, there would be a grand total of 219 Skylarks.

During the winter, at least, there is nothing as yet to show that the status of our native species of birds is in any way disturbed by the presence of the Skylark. The Skylark has few competitors among native species in winter, and, incidentally, few enemies. Almost the entire stubble community of birds in the district is composed of domestic, semidomestic, and introduced species. It might then be argued that this condi-

tion may account for the scarcity of native species on the stubbles in winter. If this be so, it is certainly not through overcrowding of the stubbles, nor through scarcity of seed or grain, for in late December several second-growth crops of grain were untouched in parts of Victoria and Saanich, and it is known that considerable areas of wasteland in those districts carry their crops of weed seeds untouched through the winter. Furthermore, similar habitats just beyond the present range of the Skylark have not as yet been taken advantage of by birds other than perhaps the introduced pheasant. With the exception of three individuals, even the Red-wing was absent from the area under observation, although it was fairly common in winter in other districts farther north.

Restricted as it appears to be in winter to one, or at most three, types of habitat, and, as is assumed to be the case, apparently confined to a single valley, the Skylark should be the first to suffer through the invasion of the stubbles by excessive numbers of other introduced species, none of which, not even *Perdix*, is so restricted. I have not closely observed the conditions in this district in summer, but the natural scarcity of native species over cultivated land in other parts of Vancouver Island is well known to me.

The stubble community in the Victoria District after October 23, barring an odd snipe and a Marsh Hawk, was composed of eight species: Mallard, European Partridge, California Quail, Ring-necked Pheasant, Domestic Pigeon, Skylark, Western Meadowlark, and House Sparrow. One only, the meadowlark, is a native, and this species was found as often on other types of arable land and pasture as in stubble. The Mallard may claim the distinction of being a native species, but in the stubble areas these birds are almost all half-tamed individuals from the local park sanctuaries. A complete census of the stubble community over all known stubbles in the district was attempted on one day in December, and although this was rather hurriedly carried out, the only birds that might have been missed were probably a few Skylarks and close-lying partridges. The result was: European Partridge, 12; Ring-necked Pheasant, 14; Domestic Pigeon, 75; Skylark, 182; Western Meadowlark, 31; House Sparrow, 24; total of 182 Skylarks to 157 of all other species. Although members of the community, the quail and the mallards do not figure on this list. Quail were rare on stubble, and although Mallards become active at night, except in one instance the stubbles showed little sign of having been much frequented by this species. The regular evening bombardments by sportsmen, carried on well into the night, would in any event hardly permit any special abundance.

The total acreage of stubbles could not be satisfactorily ascertained, but in area 4, where the acreage was known, the average number of Skylarks per acre of stubble was about 3. In some other areas, where all or part had to be roughly estimated, the results were much the same, never less than 2, nor more than 3, per acre.

Observations in parts of the Saanich Peninsula showed Skylarks to be fairly common there also. One group of 31 birds was located in a small valley running east and west on the south side of Mt. Newton. Smaller groups were found near Elk Lake and in the long valley running from the lake north to Saanichton. Numbers of rich stubbles of the A type in these valleys were frequented neither by Skylarks nor by other species of birds.

It would be unwise to attempt to state, at this time, which factor or combination of factors accounts for the Skylarks' continued presence. The extreme scarcity, both now and formerly, of native species of birds in the area now frequented by Skylarks has suggested the possibility of there having been, about 1903, a vacant ecological niche brought about by the clearing of the forests. This niche, connected with cultivation,

obviously was not, and has not as yet been, fully taken advantage of in winter. Nor has it to any appreciable extent been occupied in summer by native species. At the time of the first Skylark introduction, pheasants and quail were possibly the only species present on the stubbles; and quail, as before stated, rarely frequent stubbles unless these be in close proximity to some cover such as that afforded by broom (*Cytisus scoparius*).

Some of our native species more or less closely associated with cultivation, as for example Killdeer, Cliff Swallows, and Goldfinches, among the most common of our island species today, were unknown on the island before 1910. In a matter of a few years they increased rapidly, undoubtedly because, in part, there was no serious opposition from other species.

Of other birds connected with cultivation, the northward advance of one in particular, the Brewer Blackbird, is interesting and might well be recorded here. Now one of our most abundant residents, it was unknown before one was taken by S. N. Rhoads (Proc. Acad. Nat. Sci. Phila., 1893, p. 47), in 1892. Spreadborough (Macoun, Cat. Canadian Birds, part 2, 1903, p. 409) in the following year reported "... one specimen seen on Vancouver Island" and "... none seen afterwards," in that year. Swarth (Univ. Calif. Publ. Zool., vol. 10, 1912, p. 52) reported it as common on the east coast in 1910: "A very few were seen near Alberni, but on the west coast they seemed to be entirely absent ...." From the cultivated areas of Alberni to the nearest point to the west of similar nature would mean a "hop" of thirty miles, as the crow flies, over forest and mountain. Thus its arrival on the west coast was delayed until 1923 when in the winter of that year Mr. George Fraser of Ucluelet, an interested observer, reported to me that one was seen with some robins, and several months later, that ten were seen. Incidentally Fraser also reported the first arrival of the White-crowned Sparrow on that coast: "a pair, and likely to nest" on May 18, 1932. This was twenty-two years after Swarth reported it as not having reached Alberni and seventy years after specimens had been collected at Victoria by James Hepburn.

It seems only reasonable to conclude that so small and isolated a habitat, or group of habitats, as that afforded by cultivation upon a forested island might long remain undiscovered by native species. At the time of the introduction of Skylarks in 1903, lack of competition coupled with a natural scarcity of those predatory species usually associated with cultivation favored the establishment of the species. The Skylarks were introduced, under ideal conditions, to far more congenial surroundings than their fellows possibly found awaiting them in the earlier-established cultivated mainland areas where other acclimatization societies have exercised their meddling activities.

It may be merely a coincidence, but I believe that in regard to North America, the only two near-successful experiments with this species were on two islands, Lulu Island, British Columbia, and Long Island, New York. The conditions, especially with regard to farming activities and the status of other species of birds, that prevailed in those areas at the times of the introductions, and the conditions that prevail today, might, if recorded, reveal something of interest in this connection.

Consideration must of course be given to the position and climate of the Victoria Peninsula. Sheltered by mountain ranges from most of the prevailing, moisture-laden winds, its precipitation, as compared with other nearby coastal districts, is not heavy, amounting to about 32 inches. Again, the tempering effect of the sea breezes prevents any extremes of temperature; 40° is the average in winter, and 55° the average in summer. Snow, which does not often occur, rarely lies long upon the ground.

Major Charles Bendire in his Life Histories of North American Birds (Smithsonian

Contributions to Knowledge, no. 985, 1895, p. 327) gave February, 1888, as the date of disappearance of *Alauda arvensis* from Long Island, following a blizzard. A few must have survived, however, for Dr. Phillips (U. S. Dept. Agr. Tech. Bull. no. 61, 1928, p. 50) gives 1899 as "the last notice of their presence" in that area. Harvie-Brown (Proc. Nat. Hist. Soc. Glasgow, vol. 4, 1879, pp. 164-165) described the effect of prolonged cold weather on this species in Scotland, where they "disappeared except where fed," but he notes also observations by Robert Service: "An increase during the breeding season of 1879 was observed in S. W. Scotland, where of late years they have been on the decrease." Presumably this increase was the result of a concentration of survivors from the colder northern and eastern parts of Scotland. The climatic conditions in the vicinity of South Vancouver Island, and especially at Victoria and on Saanich Peninsula, may therefore be considered favorable, and if the present methods of farming be continued, there seems to be no reason why the Skylarks should not continue to hold their own, or even, as the timber becomes cleared to the west, extend their range.

Cobble Hill, Vancouver Island, British Columbia, August 18, 1936.

BIRDS OF THE COALINGA AREA, FRESNO COUNTY, CALIFORNIA

By JOHN R. ARNOLD

The following is a list of birds positively identified within Pleasant Valley, Fresno County, California, in which valley the town of Coalinga is situated. Observations were made here by me from September, 1933, to June, 1934, from September, 1934, to June, 1935, and from September, 1935, to May, 1936. A number of additional observations were made from time to time by Dudley DeGroot and John G. Tyler, and these I have been permitted to use.

This area is in the Lower Sonoran Life-zone; elevations range from 550 feet to 800 feet. The area has the following incomplete natural boundaries: Anticline Ridge on the northeast; Guijarral Hills on the east; Kettleman Hills and Plains on the southeast; and the Kreyenhagen Range and the Coast Range on the south, west and north. For most of the place-names here employed see Coalinga sheet, United States Geological Survey.

Colymbus nigricollis californicus. Eared Grebe. Fall resident, from September 9 (1934) to December 4 (1933), in groups of four to nine; also observed on May 4, 1934.

Ardea herodias hyperonca. California Great Blue Heron. Recorded November 11, 1933, and April 18, 1934, at the stock farm near the Guijarral Hills.

Egretta thula brewsteri. Snowy Egret. Seven seen on April 18, 1934, at the stock farm.

Butorides virescens anthonyi. Anthony Green Heron. Observed on October 9, 1933, May 5, 1934, and May 8, 1935.

Nycticorax nycticorax hoactli. Black-crowned Night Heron. Four birds recorded on April 28, 1934.

Plegadis guarauna. White-faced Glossy Ibis. One bird recorded on April 27, 1934.

Anser albifrons albifrons. White-fronted Goose. Observed twice in the area: March 7, 1934, seven birds; March 9, 1934, twelve.

Anas platyrhynchos. Mallard. An occasional visitor; does not remain long.

Marecа americana. Baldpate. Seen on November 12, 1934.

Querquedula cyanoptera. Cinnamon Teal. Observed during December, February, and March. The largest group, twenty-eight birds, was seen on March 9, 1934.

Spatula clypeata. Shoveller. A male and a female were observed on January 27, 1935.

Erismatura jamaicensis rubida. Ruddy Duck. On May 4, 1934, a male and a female were found dead in the road beside a reservoir.

Mergus merganser americanus. American Merganser. A female was observed on April 28, 1934.

Cathartes aura teter. Turkey Vulture. Observed every month from February to September, but never from September to February.

Accipiter velox. Sharp-shinned Hawk. Observed on September 15, 1933, December 4, 1933, October 14, 1934, and December 8, 1934.

Accipiter cooperii. Cooper Hawk. Recorded on September 11, 1933, March 4, 1934, December 8, 1934, January 13, 1935, October 10, 1935, and on March 29, 1936, on which latter date DeGroot found it apparently nesting at the stock farm.

Buteo borealis calurus. Western Red-tailed Hawk. A resident species in this area.

Buteo swainsoni. Swainson Hawk. Formerly an abundant spring migrant and breeding species; now seldom seen. A melanistic individual was seen May 23, 1934.

Buteo regalis. Ferruginous Rough-legged Hawk. This species has been recorded on September 21, 1935, October 22 and 23, 1933, November 13, 1935, January 10 and 15, 1934, February 14, 1934, and March 4 and 7, 1934.

Aquila chrysaëtos canadensis. Golden Eagle. Although a pair formerly nested in the area covered by this report, the eagle now visits the area only during the colder months.

Circus hudsonius. Marsh Hawk. Records show a continuous residence in this area from September to the last of April; but the bird may remain longer.

Falco mexicanus. Prairie Falcon. Observed on October 6, 1933, February 18, 1934, and November 12, 1934.

Falco columbarius ssp. Pigeon Hawk. Seen on February 26, 1934, and on January 1, 1933.

Falco sparverius. Sparrow Hawk. Abundant throughout most of the year, but many individuals seem to ascend to the pine belt to nest. A nest with eggs was found at the stock farm on March 28, 1936, by DeGroot and Tyler.

Lophortyx californica vallicola. Valley Quail. An abundant resident in this area.

Fulica americana. American Coot. Earliest record, November 7, 1933; latest record February 8, 1936.

Eupoda montana. Mountain Plover. A winter resident in small flocks. Often shot by hunters.

Oxyechus vociferus. Killdeer. Common resident.

Capella delicata. Wilson Snipe. Winter visitor, the largest group recorded being seven, November 2, 1935. One spring record, March 29, 1936 (DeGroot).

Actitis macularia. Spotted Sandpiper. Recorded during April, May and September. Usually single birds were observed, but three were seen on May 5, 1934.

Totanus melanoleucus. Greater Yellow-legs. One record, a male, March 23, 1935 (Arnold collection no. 385).

Pisobia minutilla. Least Sandpiper. Observed during March, April, May, and September; the largest group, ten, was noted on April 29, 1934.

Ereunetes mauri. Western Sandpiper. Recorded during April, May, and September; fifteen seen on September 9, 1934.

Recurvirostra americana. Avocet. On May 4, 1934, twelve Avocets were seen at a reservoir.

Lobipes lobatus. Northern Phalarope. Often found feeding in the reservoirs during September, October, and November.

Sterna forsteri. Forster Tern. Four terns were seen at a reservoir on September 9, 1934.

Zenaidura macroura marginella. Western Mourning Dove. A common resident, gathering in large flocks in winter. It frequently nests on the ground.

Geococcyx californianus. Road-runner. A common resident of the areas of taller "sage brush" in this region.

Tyto alba pratincola. Barn Owl. A common resident, frequenting and nesting in holes in the mud banks. Its chief food appears to be kangaroo rats and gophers. Six eggs were taken on February 23, 1935, from a pad of fur derived from pellets, in a hole that extended four feet into a bank.

Otus asio bendirei. California Screech Owl. The resident race here seems to be intermediate between the coastal and desert types (316 ♂, Arnold coll., October 11, 1935). Found nesting in the willow thickets March 29, 1936, by DeGroot.

Bubo virginianus pacificus. Pacific Horned Owl. Food pellets of this resident bird indicate little harmful activity in this area.

Speotyto cunicularia hypugaea. Western Burrowing Owl. This owl has been nearly exterminated in Pleasant Valley by indiscriminate .22-rifle artists, only a few pairs remaining.

Asio wilsonianus. Long-eared Owl. As many as fifteen of these resident owls have been found roosting in one willow clump. DeGroot found them nesting March 29, 1936, in these same willows.

Asio flammeus flammeus. Short-eared Owl. A common winter resident in the "sage brush" and alfalfa fields.

Chordeiles acutipennis texensis. Texas Nighthawk. One record, April 18, 1934.

Aëronautes saxatalis saxatalis. White-throated Swift. On December 17, 1933, a group of twelve was noted that seemed to have come from Jacalitos Canyon.

Archilochus alexandri. Black-chinned Hummingbird. Recorded on September 10 and 11, 1933, by Arnold and Tyler.

Calypte anna. Anna Hummingbird. Common throughout most of the year, including the nesting season; but it has never been found nesting.

Selasphorus rufus. Rufous Hummingbird. One record; a male found dead in the high school gymnasium, April 20, 1936.

Magaceryle alcyon caurina. Western Belted Kingfisher. A pair recorded frequently from October 9, 1933, to May 5, 1935, but not seen since.

Colaptes cafer collaris. Red-shafted Flicker. An abundant resident bird; often seen in holes in dirt banks, as well as on trees.

Dryobates villosus hyloscopus. Cabanis Woodpecker. An occasional winter visitor.

Dryobates nuttallii. Nuttall Woodpecker. Fairly common in the willow-cottonwood association throughout most of the year.

Tyrannus verticalis. Arkansas Kingbird. A nesting bird in this area, with the earliest date of record, March 20, 1936, and the latest, September 5, 1933.

Tyrannus vociferans. Cassin Kingbird. Earliest record, March 7, 1933, latest, December 8, 1934. None was recorded during September or October.

Myiarchus cinerascens. Ash-throated Flycatcher. Recorded during April, May, and October, but probably occurs in other months.

Sayornis nigricans. Black Phoebe. A few pairs resident about the more permanent water sources.

Sayornis saya. Say Phoebe. A common resident, nesting in garages and dirt banks in Pleasant Valley, although much of the population seems to go higher to nest.

Empidonax traillii ssp. Little Flycatcher. Several field records.

Myiochanes richardsonii richardsonii. Western Wood Pewee. Recorded May 16, 1935, one bird; May 30, 1935, two birds.

Otocoris alpestris actia. California Horned Lark. An abundant resident species, augmented in winter by migrants of this and other subspecies.

Iridoprocne bicolor. Tree Swallow. Only two records: March 14, 1934, and April 28, 1934.

Stelgidopteryx ruficollis serripennis. Rough-winged Swallow. A common bird during April and May. Recorded April 10, 1935, and May 30, 1935; nest with young found April 28, 1935.

Hirundo erythrogaster. Barn Swallow. Only two records: October 7, 1933, and March 13, 1934.

Aphelocoma californica californica. California Jay. One record, a jay killed six miles north of Coalinga on October 10, 1933.

Corvus corax sinuatus. American Raven. Common resident, often seen feeding on the larvae of the alfalfa butterfly. Earliest record of breeding is of young in the nest on March 25, 1934.

Corvus brachyrhynchos hesperis. Western Crow. Recorded on September 5, 11, and 13, 1933, and on December 8, 1934.

Nucifraga columbiana. Clark Nutcracker. One record, October 15, 1935, by Mackall Fultz.

Psaltriparus minimus californicus. California Bush-tit. Resident of willow and cottonwood thickets. A completed nest was found February 23, 1935; it was destroyed by an early March storm; a new nest and four young were found on April 10, 1935.

Troglodytes aëdon parkmanii. Western House Wren. Recorded April 28, 1934, by the author; March 29, 1936, by DeGroot.

Thryomanes bewickii correctus. San Diego Wren. Resident species in thickets. Nest with young found March 29, 1936, by DeGroot.

Telmatodytes palustris aestuarinus. Suisun Marsh Wren. Recorded through most of the year in a tule swamp at the stock farm, but no nests have been found.

Salpinctes obsoletus. Rock Wren. Recorded only on October 11, 1933, from Pleasant Valley, but it is common in the surrounding area.

Mimus polyglottos leucopterus. Western Mockingbird. Resident in small numbers in the area, nesting usually about habitations, but sometimes in the sage brush. On March 28, 1936, a nest with five eggs, well incubated, was found in a large artemisia bush. Records from one locality indicate two broods a year: April 11, 1934, one-third grown young, and May 21, 1934, nest with three eggs, the second brood.

Toxostoma redivivum redivivum. California Thrasher. Three pairs recorded in the atriplex thickets at the stock farm. DeGroot noted two young there ready to leave the nest on March 29, 1936.

Toxostoma lecontei lecontei. Leconte Thrasher. Fairly common in the atriplex and artemisia, nesting from February to June. Completed nest, February 23, 1935; nest and eggs, June 1, 1934.

Oreoscoptes montanus. Sage Thrasher. Recorded from September to May: September 19, 1933, January 19, 1935, February 18, 1933, May 5, 1934.

Turdus migratorius propinquus. Western Robin. Abundant in certain winters (1934-35), but scarce in others (1935-36). The earliest fall record is September 5, 1933.

Ixoreus naevius naevius. Pacific Varied Thrush. One record, November 29, 1934, by Hester Hume.

Hylocichla guttata ssp. Hermit Thrush. Records on November 11, 1933, November 9, 1934, November 12, 1934, January 20, 1935, and February 23, 1935.

Hylocichla ustulata ustulata. Russet-backed Thrush. Recorded as a migrant on April 28, 1934, May 16, 1935, and May 18, 1936 (427 ♂, Arnold coll.).

Sialia mexicana occidentalis. Western Bluebird. Recorded in every season except midsummer, when the author was not in the area. Nested in a metal pipe clothes-line pole in May, 1936. Earliest date, September 2, 1933; latest, May 30, 1935.

Sialia currucoides. Mountain Bluebird. Known only as an irregular winter visitor.

Polioptila caerulea amoenissima. Western Gnatcatcher. Recorded at the stock farm on November 2, 1935, and on February 8, 1936.

Corthylio calendula cineraceus. Western Ruby-crowned Kinglet. Winter visitor: earliest record, October 23, 1934; latest record, April 10, 1935.

Anthus spinoletta rubescens. American Pipit. Winter visitor about water. Earliest record, November 12, 1934; latest record, March 25, 1934.

Bombycilla cedrorum. Cedar Waxwing. Regular winter visitor, with great variation in length of stay. Earliest record, October 18, 1933; latest record, May 27, 1934.

Lanius ludovicianus gambeli. California Shrike. Specimens from this area indicate an intergradation with those from the Mohave Desert, as might be expected. A common resident, with the following nesting records: Nest and six eggs, February 8, 1936, hatched before February 15; February 23, 1935, 5 eggs; February 26, 1935, 7 eggs; March 6, 1935, 5 eggs.

Vireo solitarius cassinii. Cassin Vireo. Three birds seen November 2, 1935.

Vireo gilvus swainsonii. Western Warbling Vireo. Recorded on September 15, 1934.

Dendroica aestiva brewsteri. California Yellow Warbler. Common in spring. Recorded April 28, 1934; May 30, 1935.

Dendroica audubonii. Audubon Warbler. Common in winter, often in flocks of 200-300 individuals. Earliest record, October 14, 1934; latest, March 28, 1935.

Dendroica nigrescens. Black-throated Gray Warbler. Spring migrant; April 28, 1935.

Geothlypis trichas occidentalis. Western Yellow-throat. Recorded October 22, 1933, and September 10, 1934; probably more common than records indicate.

Wilsonia pusilla chryseola. Golden Pileolated Warbler. Recorded May 5, 1934, and May 7, 1935.

Passer domesticus domesticus. English Sparrow. This foreigner is common about town and the older ranch houses, but it does not occur in the fields.

Sturnella neglecta. Western Meadowlark. Common resident throughout the year. Flocks of 400-500 often are seen during the winter and spring in the alfalfa fields. Nesting records: April 18, 1934, 4 eggs, well incubated; April 28, 1934, 3 young.

Xanthocephalus xanthocephalus. Yellow-headed Blackbird. Eight birds recorded on April 26, 1934; others seen during the same week.

Agelaius phoeniceus californicus. Bicolored Red-wing. Not as common as the Brewer Blackbird. Probably breeds.

Agelaius tricolor. Tricolored Red-wing. Sporadic visitor about reservoirs and the stock farm.

Icterus bullockii. Bullock Oriole. This bird arrives by April 1, if not before, and nests about the ranch houses.

Euphagus cyanocephalus. Brewer Blackbird. A common resident, gathering in flocks in fall and winter, but remaining in smaller groups the rest of the year. The majority nest in the higher foothills, although a few remain in the valley.

Molothrus ater obscurus. Dwarf Cowbird. Fairly common about the stock farm; its eggs were found with those of the Heermann Song Sparrow, April 28, 1934, by Tyler and Arnold.

Piranga ludoviciana. Western Tanager. Recorded in town on May 7, 1935, two males and one female; four were seen on May 30, 1935, at the stock farm.

Hedymeles melanocephalus. Black-headed Grosbeak. Observed on March 14 and 28, 1935, on April 10, 1935, and on April 23, 1936.

Carpodacus cassinii. Cassin Purple Finch. A male was seen January 18, 1934, feeding on cotoneaster berries.

Carpodacus purpureus californicus. California Purple Finch. Recorded January 10, 1934.

Carpodacus mexicanus frontalis. Common House Finch. A common resident of this area. March 25, 1934, nest and 5 eggs; April 18, 1934, nest and 5 eggs; and April 19, 1935, nest and 5 eggs.

Spinus tristis salicamans. Willow Goldfinch. Fairly common through most of the year, but not recorded as nesting.

Spinus psaltria hesperophilus. Green-backed Goldfinch. Fairly common through most of the year; not recorded as nesting.

Spinus lawrencei. Lawrence Goldfinch. One record, September 18, 1935, from the valley. It breeds in the surrounding hills, at about 1500 feet above sea level.

Pipilo maculatus falcinellus. Sacramento Spotted Towhee. A little-seen, sporadic resident of the underbrush. No nests recorded.

Piplio fuscus carolae. Sacramento Brown Towee. Only two records from the valley: December 17, 1933, and April 10, 1935.

Passerculus sandwichensis alaudinus. Western Savannah Sparrow. An abundant winter resident of the alfalfa fields, from October until March.

Pooecetes gramineus ssp. Vesper Sparrow. One record, October 20, 1933.

Chondestes grammacus strigatus. Western Lark Sparrow. A common winter and summer resident; nests only above the 1000-foot level in the hills.

Amphispiza nevadensis canescens. California Sage Sparrow. A resident species, more easily seen from October to March than during the breeding season. A nest with three eggs was found by De Groot on March 29, 1936, at the stock farm.

Junco oreganus thurberi. Sierra Junco. Only an occasional visitor during the colder parts of the winter.

Zonotrichia leucophrys gambelii. Gambel Sparrow. This is our most common winter resident, arriving by the middle of October and leaving after the middle of April. Latest record, April 18, 1934.

Zonotrichia coronata. Golden-crowned Sparrow. A winter visitant, usually found among the Gambel Sparrows and therefore often overlooked. Recorded February 26, 1934, and April 28, 1934.

Melospiza melodia heermanni. Heermann Song Sparrow. A resident of the swampy area known as the Stockfarm Scout Camp, where it nests in the cattails. A set of 5 eggs collected April 28, 1934, by Tyler and Arnold contained one cowbird's egg.

Ithaca, New York, October 3, 1936.

FROM FIELD AND STUDY

Double-crested Cormorant Nesting on the Bear River Refuge in Utah.—A new nesting record of the Double-crested Cormorant (*Phalacrocorax auritus auritus*) on the Bear River Migratory Bird Refuge, Utah, may prove of interest. Eight nests of this species were found on September 2, 1936, by CCC workers, and checked the following day by Superintendent George E. Mushbach and myself. Four of the nests contained three, two, two, and one immature birds, respectively; no birds were in the other four, but several eggs and broken eggshells indicated that the birds had attempted to rear young in them.

All the nests were on four mounds of earth that had been built up and covered with rocks that varied in size from one-fourth to one cubic foot, and which had been hauled in from nearby mountains to encourage nesting of this bird. These are the only rock piles on the entire refuge of sixty-four thousand acres, except for certain retaining walls along the dikes. The nests were made of sticks about half an inch in diameter and one to two feet in length. These were interlaced to form a bowl about eight inches across and three inches deep. Primary feathers of various birds were used to line the nests. Each nest was on a high point of the irregular mound.

At the time of examination the young were downy, except for the primaries which were still in the quill stage. Two of them were able to leave the nest but could not fly. The young were banded, and they left the nests during the following two weeks.—WILLIAM H. MARSHALL, *Bureau of Biological Survey, Brigham City, Utah, November 5, 1936.*

Fig. 9. Redwood attacked by Red-breasted Sapsucker; Van Duzen River, Humboldt County, California. Leaning tree in center, 48 inches in diameter, shows evidence of heavy drilling.

Sapsuckers on Redwood.—On several occasions, the writer has come across redwood trees that have been singled out by Red-breasted Sapsuckers (*Sphyrapicus varius daggetti*) for their operations. In each instance the individual tree was "peppered" with holes in horizontal rows, from the base to the top. In virgin timber, it is only an occasional tree that is attacked, and one searches in vain for another victim in the general vicinity. Such attacked trees are infrequent. Figure 9 pictures a tree 48 inches in diameter in the virgin forest on a flat near Grizzly Creek on the Van Duzen River in Humboldt County, California. The tree is made conspicuous by the characteristic sapsucker punctures.

During the present year, the writer came upon his first example of sapsucker work on so-called second-growth redwood. This young timber originated from sprouts after logging that was conducted about sixty years ago. The sapsuckers attacked every tree in two groups, or families, of sprouts. One sprout clump had six sprout trees, and the other, about twenty-five feet distant, had four sprouts. In figure 10 the parent stump is shown in the center of a clump. These sprouts, or suckers, were from 10 inches to 19 inches in diameter, and 90 feet high. They stood on the edge of the old cutting on Two-log Creek about eighteen miles from Fort Bragg on the Fort Bragg-Willits road. The heavily punctured trees made a striking display and could not but attract immediate attention. For so many trees in one clump to be attacked is not necessarily inconsistent with the statement made above that only widely separated trees are attacked, because the trees in a sprout clump are not individuals physiologically, having arisen from a single parent stump. Nevertheless, in this case the two clumps, each from a separate parent tree, were not far apart.

It might be deduced that the sapsucker is highly selective in choosing trees, or, put in a better way perhaps, it is only the rare redwood tree that is attractive to the sapsucker. In the case of a clump of stump sprouts, each sprout seems to possess this attractiveness or palatability. Were a record available of the parent tree, it is not unlikely that it, too, would have been found to have been a host for the sapsucker. This relationship between parent tree and sprouts is manifested also in other ways.

Fig. 10. Exaggerated case of drilling by Red-breasted Sapsuckers, showing workings on all members of a family of stump sprouts. Drillings extended from near ground line to the upper crowns.

A sample of bark removed from one of the trees indicates that the birds worked on the trees but a few years before. The holes extended nearly to the inner bark, but the inner face of this living bark layer showed no marks or effects of the drilling. This is to be expected, since new bark, as it is formed, pushes outward from the cambium layer and there is no tendency to fill wounds, as would be the case on the surface of the woody portion of the stem.—EMANUEL FRITZ, *Division of Forestry, University of California, Berkeley, October 20, 1936.*

Vermilion Flycatcher near Los Angeles.—As a matter of interest I record seeing today, between Los Angeles and South Pasadena, a female Vermilion Flycatcher (*Pyrocephalus rubinus mexicanus*). The bird was on a weed-covered hillside in company with a Black Phoebe; a Sharp-shinned Hawk was foraging for birds in the same field.—WILSON C. HANNA, *Colton, California, October 22, 1936.*

Bald Eagle Pellets in Kansas Show Rabbits as Principal Food.—Many Bald Eagles (*Haliaeetus leucocephalus*) winter in western Kansas and roost in the tall cottonwoods along the shallow streams. In this habitat, surrounded by grassland and cultivated fields, the principal food is the Black-tailed Jack Rabbit. In the winter of 1935-36 the writer collected 105 pellets under a roost

which was used by from nine to sixteen Bald Eagles. These were sent to the Division of Wildlife Research of the Biological Survey where they were examined by Mr. C. S. Williams. Invariably each pellet contained the remains of a single animal plus some incidental débris such as sticks, stones, grasses, and dirt. One hundred and five pellets contained the following items: 104 Leporidae [8 *Lepus californicus*, 2 *Lepus* (*townsendii*?), 45 *Lepus* sp., 2 *Sylvilagus* (*floridanus*?), 1 *Sylvilagus*?, 47 unidentified rabbits]. There was one occurrence of a prairie dog (*Cynomys ludovicianus*).—RALPH H. IMLER, *Stockton, Kansas, October 5, 1936.*

Concerning the Name of the Sonora House Finch.—Ornithologists in general, and those who are interested in variations of the House Finch in particular, will welcome Robert T. Moore's paper entitled "Description of a new race of *Carpodacus mexicanus*" which appeared in a recent number of the Condor (vol. 38, 1936, pp. 203-208). This paper outlines the transition from a relatively large, streaked, pale-colored race in the southwestern United States to a small, nearly unstreaked, red race which reaches its culmination in characters in Sinaloa.

The author decides that Ridgway's old name *Carpodacus mexicanus sonoriensis* is not applicable to the Sinaloa birds, and he therefore makes a new one, *Carpodacus mexicanus rhodopnus*, with a range for the race restricted to that State. However, there is one element of nomenclature which Moore has completely overlooked. To be specific, his page-long analysis of the "type" of *sonoriensis* (a specimen of rather anomalous characters) is somewhat redundant in view of the fact that there is no holotype of that race. It is true that in the United States National Museum there is a specimen (no. 164324 Biol. Survey Coll.) marked as the type. But Ridgway named no type at the time the name was published and his series, therefore, constitute cotypes.

So far as can be determined by an analysis of Ridgway's description (Birds of North and Middle America, vol. 1, 1901, p. 135) there were eighteen cotypes from "southern Sonora (north to Guaymas on the coast) and southwestern Chihuahua (Batopilas, etc.)." Specific localities mentioned are Batamotal, Guaymas, and Alamos in Sonora, and Batopilas in Chihuahua. The smaller size of the Chihuahua specimens is particularly mentioned. Under these circumstances the whole question of what name to apply to the Sinaloa population must be reopened on the basis of adequate series of specimens from localities represented by the original series of cotypes. If birds from any one of these localities are found to average closer in characters to *"rhodopnus"* than to *frontalis*, there is ample precedent for the establishing of a restricted type locality which will allow the preservation of an old name as a preferable alternative to the creation of a new one.

It is my emphatic opinion that the name *sonoriensis* will easily include *rhodopnus*. If a reviewer decides that *sonoriensis* is really a composite which includes two races, he has, of course, the privilege of burying it under *frontalis* or he may preserve it and bury *rhodopnus*. In any event the matter is still open for the action of a reviewer.—A. J. VAN ROSSEM, *Dickey Collections, California Institute of Technology, Pasadena, California, September 23, 1936.*

Summer Records of Birds for Marin County, California.—In the course of summer observations on birds in the vicinity of Mt. Tamalpais during the months of June and July, 1936, three avian species were noted which, in so far as known, have heretofore been considered only as winter visitants or migrants in this region.

From June 9, when first discovered, until July 21, when field observations were stopped, Audubon Warblers (*Dendroica auduboni*) were noted almost daily in the vicinity of Rock Springs on the western slope of the Mountain. This species was one of the most common forms observed in the Douglas fir forests which are dominant hereabouts. In certain instances as many as four singing individuals could be heard from one point. Pairs were regularly noted.

Black-throated Gray Warblers (*Dendroica nigrescens*) were observed close to Potrero Meadow, north of Rock Springs, between June 9 and July 21, although they were not so common as members of the previously mentioned species. The margins of Douglas fir tracts where live oaks were numerous seemed to be the preferred type of cover chosen by this warbler.

Red-breasted Nuthatches (*Sitta canadensis*) were noted occasionally between June 11 and July 21, both in forests composed almost entirely of Douglas firs and in areas where these trees were growing in combination with redwoods on the northwestern slope of the Mountain.

Unfortunately no nests of the three above-mentioned species were located. Considering, however, the period during which these birds were observed, it appears highly probable that all three species were breeding in this southwestern portion of Marin County.—ROBERT T. ORR, *California Academy of Sciences, San Francisco, September 25, 1936.*

Fig. 11. Terra cotta chimney used by Sparrow Hawk as nesting site.

Sparrow Hawk Nests in Chimney.—A student of the Benicia High School, Vernon Ray, brought to me on April 14, 1936, a female Sparrow Hawk (*Falco sparverius*) and four eggs which he informed me were taken from a chimney in a small building at Paddy's Dam, four miles northeast of Benicia, Solano County, California. I banded and released the bird, and he offered to show me the location of this odd nesting site. I found it to be in a small building used as a tool shed on the edge of the reservoir. The chimney in which the eggs had been laid consisted of two sections of terra cotta pipe, as shown in the accompanying illustration (fig. 11). No stove was connected with the chimney at this time, and the hole was open through the pipe from the interior of the building to the exterior. The eggs had been laid in the bottom of the vertical piece of pipe, and were exposed to the sky. They were of the customary type, though darkened or blackened to some extent by the soot in which they lay.

When approached from the exterior, the sitting bird, in leaving the eggs, entered the building through the horizontal section and was there caught by the boy who located this unusual nesting site. The feathers of the parent bird were, of course, also darkened by soot.—EMERSON A. STONER, *Benicia, California, August 24, 1936.*

Summer Tanager at Wilmington, Los Angeles County.—A male *Piranga rubra rubra* was found dead in Banning Park, Wilmington, California, by Mrs. Edith J. Dietrich, March 14, 1936. It was brought to the Los Angeles Museum by Dr. Adele Grant and is now no. 18655 of our collection. I believe this is the fourth record of the subspecies in Los Angeles County and the fifth in southern California.—G. WILLETT, *Los Angeles, California, November 6, 1936.*

A Few Unusual Records from Central California.—Florida Gallinule (*Gallinula chloropus cachinnans*). This species was found breeding at Soap Lake, near Gilroy, on May 27, 1935, when a set of eight heavily incubated eggs was collected. Another set of six was found on May 28, 1936, which was left. This appears to be the first breeding record for the San Francisco Bay Region. (See Grinnell and Wythe, Pac. Coast Avif. No. 18, 1927, p. 64.)

Southern Bald Eagle (*Haliaeetus leucocephalus leucocephalus*). One record. An adult of this species flushed from the ground in the foothills east of Gilroy and crossed the road not more than twenty feet in front of the writer's car on March 26, 1928. The bird carried a ground squirrel (*Citellus beecheyi*) and lit in the top of an oak not far from the road where it continued its meal.

Osprey (*Pandion haliaëtus carolinensis*). One record. A bird was noted about four miles west of Gilroy on Uvas Creek, May 10, 1935. The bird was sitting on a dead sycamore about 75 yards from the road and was carefully observed for about twenty minutes with 8-power glasses. It then flew west. At this time a pair had a nest on the top of a redwood tree in Green Valley which is about eight miles northeast of Watsonville. That would be about eight miles in a straight line from the point of record. The bird headed toward the nesting site. The writer is familiar with this species, having noted it many times on the Atlantic Coast.

American Rough-leg (*Buteo lagopus s. johannis*). A few of these birds winter with us. One noted at Soap Lake, December 12, 1934, and another on December 3, 1935. A fine male was collected at the lake on December 26, 1935.

Ferruginous Rough-leg (*Buteo regalis*). Noted every winter on the Bolsa Plains between Gilroy and Hollister. Two birds collected about twelve miles east of Gilroy in Pacheco Pass on January 11, 1932. During the winter of 1933 and 1934 these birds were noted every day in the field. Six birds were noted on January 24, 1934, and five on December 20, 1933.

Clark Nutcracker (*Nucifraga columbiana*). A bird of this species shot by some boys at the Bear Valley School near Pinnacles, San Benito County, September 10, 1935, had been around

for several days. The head being nearly shot away it was impossible for the writer to do anything with it.

Dotted Wren (*Catherpes mexicanus punctulatus*). Since 1922 the writer has been taking notes at Big Sur, Monterey County, and this species has been recorded once. On May 14, 1927, a friend showed me a nest built over the door of a small cabin at Big Sur. This turned out to be a nest of this species with young just-hatched. This nest was visited every day for a week and the birds and their song checked many times. The deep redwood canyon and the rushing stream is not the association where one would expect to find this species.

Harris Sparrow (*Zonotrichia querula*). A male in juvenile plumage in the writer's collection was taken by H. R. Eschenberg at his feeding station on January 20, 1936.

White-throated Sparrow (*Zonotrichia albicollis*). An adult male also taken by Eschenberg at his feeding station in Gilroy, December 17, 1935.

Townsend Solitaire (*Myadestes townsendi*). A female in the writer's collection taken by H. R. Eschenberg at his home in Gilroy, January 21, 1932. Another bird was collected the day previously, and on January 23, 1932, two more birds appeared and stayed several days.

Least Vireo (*Vireo bellii pusillus*). A set of four eggs with nest in the writer's collection was taken near Sargent, Santa Clara County, on April 19, 1932. The nest was in the crotch of a small willow about 18 inches above the ground in a dark thicket. The bird almost allowed itself to be touched before flushing and would return immediately even under the hand. This appears to be the first breeding record for the San Francisco Bay region. (See Grinnell and Wythe, Pac. Coast Avif. No. 18, 1927, p. 131).—W. E. UNGLISH, *Gilroy, California, August 27, 1936.*

The Eared Grebe and other Birds from the Pliocene of Kansas.—Through Mr. Claude W. Hibbard of the University of Kansas I have had opportunity recently to examine some fragmentary bird bones collected in the Edson Beds in Sherman County, Kansas, from the type locality of *Grus nannodes* Wetmore and Martin. According to Mr. Hibbard (Trans. Kansas Acad. Sci., vol. 37, 1934, p. 239) the material is middle Pliocene in age, with the possibility of somewhat greater antiquity that would range it in the upper portion of the lower Pliocene. While fragmentary, some interesting information is available and it is hoped that other bird remains may be secured from these deposits.

Colymbus nigricollis.—A right metatarsus (no. 3834, Univ. Kans. Mus. Vert. Pal.), with the head and the internal trochlea missing, was collected by Dr. E. H. Taylor at Easter time in 1935. The specimen though fully grown comes from an immature individual. With a series of six *Colymbus nigricollis,* including specimens from Germany, China, and the United States, and nine *Colymbus auritus* available, I find that these two species are distinguished on careful comparison by the size of the middle trochlea. This is decidedly heavier in *auritus* and more slender in *nigricollis.* The fossil agrees so definitely with *nigricollis* that after some consideration it appears that it must be identified as that species. Its occurrence in Kansas during the middle Pliocene is highly interesting, as this carries the history of this grebe back far beyond its previously known record for the Pleistocene of Fossil Lake, Oregon.

Scolopacidae, indeterminate.—The proximal end of a left metatarsus collected by Dr. E. H. Taylor during the Easter vacation in 1935 represents a sandpiper, apparently of the subfamily Eroliinae. The bird was about the size of the Pectoral Sandpiper, *Pisobia melanotos.* The specimen is too fragmentary to allow more definite determination.

The distal end of a right metatarsus obtained by David Dunkle on August 20, 1935, is from a species slightly smaller than *P. melanotos.* It is peculiar in the broadening of the base on which the outer trochlea rests, in this being similar to *Arenaria.* In form it is slender, having the proportions of *Pisobia.*

Corvidae, indeterminate.—The proximal end of a right coracoid collected by Dr. E. H. Taylor during the Easter period, 1935, is from a bird of this family that seems closer to the genus *Pica* than to any others that I have seen. It represents a distinct genus that is apparently unknown, differing from modern magpies (*Pica pica* and *P. nuttallii*) in having the inner margin of the head less expanded and rounded, more nearly straight. It is slightly smaller than the smallest *Pica* seen. Though it seems certain that the species represented is quite distinct from any now known it is hardly practicable to diagnose it from this fragmentary bit.—ALEXANDER WETMORE, *United States National Museum, Washington, D. C., August 29, 1936.*

Northern Arizona Bird Notes.—The following bird notes were obtained by the authors during the course of collecting activities in the San Francisco Mountain region and vicinity, Arizona, in 1934. Specimens collected are in the Randolph Jenks Collection at the Museum of Vertebrate Zoology, University of California.

Western Willet (*Catoptrophorus semipalmatus inornatus*). An adult male was collected by Stevenson at Vail Lake, 8 miles southeast of Flagstaff, on August 5. Hargrave (Condor, vol. 35, 1933, p. 76) lists eight published records of this species for Arizona, but few refer to specimens collected.

Lesser Yellow-legs (*Totanus flavipes*). Two were seen, and one collected, by Stevenson on July 29, at a marsh 4 miles south of Oraibi, Navajo County. These birds were found with three Greater Yellow-legs (*Totanus melanoleucus*). The Lesser is rare in Arizona. There is one published record for northern Arizona (Hargrave, *op. cit.*, p. 76).

Wilson Phalarope (*Steganopus tricolor*). The Wilson Phalarope is an uncommon bird in Arizona and few records have been published. A flock of thirty was seen resting on Vail Lake, August 5, when one female was collected by Stevenson.

Arkansas Kingbird (*Tyrannus verticalis*). The common summer resident kingbird of the high central and northern portions of Arizona is *Tyrannus vociferans*. Most kingbird records for the San Francisco Mountain and Grand Canyon regions thus refer to the Cassin Kingbird. On August 1, we found several Arkansas Kingbirds in cottonwoods at Tapaan Springs, 3 miles west of Cameron Bridge, Coconino County, 4150 feet altitude, low Upper Sonoran Zone. An immature female was collected by Stevenson.

Lucy Warbler (*Vermivora luciae*). We were surprised to find, on July 31, a Lucy Warbler in Doney Park, nine miles northwest of Flagstaff, 6750 feet, Transition Zone. The bird, an immature female, was collected by Stevenson. The only other record for this bird in central or northern Arizona, north of Fort Whipple, is that of Jenks (Grand Canyon National Park, Ariz., Technical Bull. No. 5, 1932, p. 8) who cites one sight record for spring from the bottom of the Grand Canyon.

Brewer Sparrow (*Spizella breweri breweri*). Scarce in summer in Arizona and most breeding records are indefinite. Brewer Sparrows were found quite commonly on July 29 in a juniper-sagebrush association north of Deadman Flat, 41 miles northwest of Flagstaff, Upper Sonoran Zone. At least twenty birds were seen. An immature female and an adult male were collected by Stevenson. The species may have nested in that locality.—RANDOLPH JENKS, *Arizona State Museum, Tucson, Arizona,* and JAMES STEVENSON, *Wildlife Division, National Park Service, Washington, D. C., July 2, 1936.*

New Birds Recorded from Bryce Canyon National Park, Utah.—Between October 7 and 11, 1935, the writer did biological work in Bryce Canyon National Park, southwestern Utah, with C. C. Presnall, Park Naturalist, and A. E. Borell, Regional Wildlife Technician. Later, on November 23, he visited Bryce again with C. C. Presnall and made further observations. The following birds new to the park were recorded. All specimens collected are now in the Zion National Park museum.

Buteo lagopus s. johannis. American Rough-legged Hawk. A single individual was seen perched on a telephone pole a short distance west of the park boundary on November 23. Owing to the wide-ranging habits of the species, this is considered to be good basis for including it in the park list, for it undoubtedly occurs there during migration. Presnall did not include it in his list of the birds of Zion National Park (Utah Acad. Sci. Arts and Letters, vol. 12, 1935). It is considered to be uncommon in the region.

Buteo regalis. Ferruginous Rough-leg. On October 3 a rather small individual of this species, probably a male, was seen perched in the top of a tall dead yellow pine in Swamp Canyon, elevation 7300 feet. The next day it, or another one, was seen in the same place, but efforts to collect it were fruitless. The Ferruginous Rough-leg is common throughout southern Utah. It is seen frequently at Cedar Breaks National Monument, elevation 10500 feet, in all seasons except winter, and it is common in the region of Zion National Park. On April 9, 1936, I saw one at Panguitch Lake, elevation 7500 feet, when the lake was still frozen and the ground covered with snow. Three specimens were taken July 11, 1936, in the cedar-piñon pine belt in the foothills of the Iron Mountains west of Cedar City. It probably breeds in all of the mountains of the State.

Capella delicata. Wilson Snipe. On October 10 one was flushed from the edge of Campbell Canyon spring, elevation 6800 feet. The following morning, when the spring was visited, the snipe was again flushed, only to drop out of sight in a brushy place about one-fourth of a mile north, where it could not be located. Campbell Canyon spring has a small but permanent flow of water, which has never been developed for domestic purposes, so that it is surrounded by a marshy place perhaps fifty feet in diameter. The edge of this marsh is thickly grown up with brush consisting of birch (*Betula fontinalis*) and cottonwood (*Populus angustifolia*). Wilson Snipe are common in suitable places in southern Utah throughout the fall and winter.

Dryobates pubescens leucurus. Batchelder Woodpecker. These woodpeckers were seen several

times in cottonwood trees in Swamp Canyon at an elevation of 7300 feet. A male and a female were collected on October 8 by Long and Borell. The Batchelder Woodpecker is not common over most of southern Utah. I have recorded it only a few times at elevations ranging from 3900 to 7500 feet, at Springdale, Beaver, and Panguitch Lake.

Aphelocoma californica woodhousei. Woodhouse Jay. Although not as common as the Long-crested Jay (*Cyanocitta stelleri diademata*), the Woodhouse Jay occurs in Swamp Canyon, where it was seen several times. A female was taken by Long on October 8. This species is common in the oak belt throughout the region.

Psaltriparus minimus plumbeus. Lead-colored Bush-tit. A small flock was seen in Campbell Canyon on October 10, but they were not recorded at any other time. The elevation of this place is approximately 6600 feet. Bush-tits are very common all over southwestern Utah, and occur sparingly up to about 7000 feet. The favorite habitat is the oak and cedar belts in the canyons and on the mountain sides.

Spinus tristis pallidus. Pale Goldfinch. Four were seen on November 23 in Bryce Canyon, at the east boundary of the park, at an elevation of 6890 feet. A female was collected by Long. The Pale Goldfinch is quite common in this region, but the present record is as high as I have recorded it. Other recorded localities are Springdale, Kanab, Cedar City and Panguitch, the last locality being about 25 miles northwest of Bryce Canyon National Park.

The addition of these seven records brings the total list of birds recorded from Bryce Canyon National Park to eighty-three species and subspecies.—W. S. Long, *Colorado Springs, Colorado, November 6, 1936.*

The Nuptial Flight of the Texas Nighthawk.—The behavior of the Texas Nighthawk (*Chordeiles acutipennis texensis*) in the breeding season is fairly completely known from the accounts given by Dawson (Birds of California, Booklovers' Ed., vol. 3, 1923, pp. 1065–1069), Grinnell and Storer (Animal Life in the Yosemite, 1924, pp. 347–348), and Woods (Condor, vol. 26, 1924, pp. 3–6). Especially favorable opportunities to observe this species in nuptial flight were afforded me in May and June of this year while camping in the lowlands of the Santa Cruz and Gila river valleys of southern Arizona. On the occasions when birds were watched performing, a few new items came to my attention that perhaps justify a brief re-description of the courting actions of this species.

The courtship flight is essentially a pursuit at close range, of the female by the male, with accompanying vocal notes and peculiar flight posture. On the evening of June 4, 1936, on Rillito Creek, near Tucson, I was stationed on a ridge overlooking a side wash. Nighthawks were flying at about my level, in a light that still was strong enough to make visible details of markings on the birds. Several pairs within a space no greater than an acre were engaged in the pursuit flight. The contrast in degree of whiteness of wing and throat patches of males and females was at once evident. That this sexual difference apparently was recognized by the birds and that it was specifically accentuated by the actions of the male were facts new to me. As a male swung into line behind a female, his white throat was displayed so that, as the pair flew toward me, the brownish white throat of the female was scarcely noticeable, whereas that of the male was a conspicuous white beard. The impression was gained that the feathers of the throat of the male were lifted and that the whole throat area was expanded. Usually, perhaps always, this "flashing" of the throat patch was accompanied by vocal notes. Like a Red-winged Blackbird, display of the male insignia was associated with characteristic sounds. When males came close to one another, frequently they challenged with trills and throat display; but they did not pursue one another to any extent.

Vocal notes are of four main types: (1) Long-continued guttural trills, well characterized by Dawson as amphibian-like, but also remindful of the sound of a motor at a distance; (2) a twang like the picking of a banjo (Dawson) or, more prosaically, like the twang of a jew's-harp; (3) staccato clucks; and (4) melodious trills of varying intensity, similar to those of western screech owls (Grinnell and Storer), except for cadence. The twang and the melodious trill may follow one another in rapid succession. The guttural trill seemed not to enter into the courtship on the wing. I could not be certain that this note was given on the wing at all; its source always seemed stationary. The melodious trill was occasionally given by birds perched in mesquite trees in the heat of midday.

In the nuptial pursuit, the male attempts to take a position close behind and a few feet above the female, all the while twanging, clucking and trilling. Then follows a short plunge toward the female, accompanied by a melodious trill of increasing intensity. The plunges which I observed were never more than about six feet, and not at a steep angle. During the plunge the wings were bent downward in precisely the same fashion as in the terminal phase of the boom-flight of *Chordeiles minor* (Miller, Condor, vol. 27, 1925, p. 142, fig. 39b). There was no additional note accompanying this action, hence nothing comparable to the boom of *minor* that is produced by the wings. There is

not enough speed attained by *acutipennis* to vibrate the feathers, even if they were capable, by reason of their shape, of making a sound. Nevertheless, the similarity of flight posture is significant in such closely related species. In the courtship of each there appears the same action pattern, the same neuromotor response, constituting the ecstatic climax of the nuptial flight. *Chordeiles minor* may be supposed to have evolved a wing-produced note out of this common heritage of behavior. Or, has *acutipennis* retained but the silent vestige of an action once productive of sound? The Texas Nighthawk has a larger repertoire of vocal notes than does the other species. The plumage display, dive, wing posture and vocal note, all coördinated, should be as effective advertisements of maleness as the boom-flight of *minor* that is more spectacular to human perception.—ALDEN H. MILLER, *Museum of Vertebrate Zoology, Berkeley, California, September 19, 1936.*

The Prairie Falcon Nesting in Saskatchewan.—On May 23, 1936, Mr. C. F. Holmes, in company with Mr. E. H. M. Knowles of Regina, discovered the Prairie Falcon (*Falco mexicanus*) nesting in the valley of the Frenchman River, fifteen miles southeast of Eastend, in southwestern Saskatchewan. As appears to be usual, there was no nest of any description, the four eggs being laid on the bare sand in a recess in the side of a thirty-foot cliff (see fig. 12). A series of photographs was taken of the eggs and later, of the young birds, the last picture being secured on July 8.

Fig. 12. Eggs of the Prairie Falcon near Eastend, Saskatchewan.

In settled-up country, the Prairie Falcon can often become a troublesome "chicken-hawk"; but in common with other raptors its numbers are not what they were twenty years ago. Thus the finding of the nesting place, the first recorded in the Province, is of special interest. We may hope the falcons will continue to use this aerie where they stand an excellent chance of rearing their brood unmolested.—LAURENCE B. POTTER, *Gower Ranch, Eastend, Saskatchewan, October 26, 1936.*

Canyon Wren in the State of Washington.—On August 12, 1936, I saw a Canyon Wren (*Catherpes mexicanus conspersus*) on some rock cliffs overlooking the Columbia River, in Ginkgo Petrified Forest State Park, Kittitas County, Washington. The bird remained within thirty feet for some minutes, and several times voiced its descending-scale song. The bird, or another individual, was observed and heard at the same place, under equally good conditions, on August 26.

As far as I know, this species, heretofore, has not been definitely reported from the state of Washington. Although state records, to be acceptable, usually require the collection of a specimen, the appearance and song of the Canyon Wren are so characteristic, and I have become so familiar with the bird in California, that I am confident of the accuracy of this identification. According to Grinnell and Behle (Condor, vol. 37, 1935, pp. 247–251), this is the only recognizable subspecies in the far western United States.—RICHARD M. BOND, *Wildlife Division, National Park Service, Portland, Oregon, October 2, 1936.*

Notes on some Petrels off San Diego.—In the Condor for 1918 (vol. 20, p. 211), the Kaeding Petrel (*Oceanodroma leucorhoa kaedingi*) was restored to the California faunal list on the basis of a single specimen taken in 1904 just two seconds of latitude north of the projected Mexican border. Although technically correct, this solitary record has always given me the feeling of "winning on a technicality."

Much greater satisfaction is realized now in announcing the capture of three specimens and sighting several others on the direct line between San Diego and the south end of San Clemente Island. Dr. Alden H. Miller very kindly checked the identity with birds in the collections at the Museum of Vertebrate Zoology in Berkeley, corroborating the identification.

During each of the last two summers it has been my good fortune to spend a period in studying the offshore birds under the auspices of the Scripps Institution of Oceanography. These all too brief observations show that there is still much to be learned regarding the postbreeding movements of our petrels. During the 1935 season only two white-rumped birds were seen, one of which was collected and proved to be a Wilson Petrel. One Least Petrel was collected and thousands of Black Petrels were seen rafting in dense packs.

This year, in the same area and at the same date, one Least Petrel (*Halocyptena microsoma*) was collected and others seen, three Kaeding Petrels were collected and numbers of others were seen, while Black Petrels were quite rare.

All of these birds that were collected, except the Wilson Petrel, had quite large gonads in process of reduction; all are species breeding farther to the south and hence were in a post-nuptial northward drift. Observing was done from fifteen to thirty miles offshore while "hove to" for oceanographic work. Such offshore study could be extended with profit over a greater part of each year for a number of years.

The Kaeding Petrels were feeding on floating eggs, apparently of fish, which they picked up while settled on the water with wings raised.—Love Miller, *University of California at Los Angeles, October 7, 1936.*

An Additional Record of the California Clapper Rail away from Marshes.—A California Clapper Rail (*Rallus obsoletus obsoletus*) was picked up from the Southern Pacific tracks at Shattuck and Rose streets, Berkeley, Alameda County, September 23, 1936. It was presented to the Museum of Vertebrate Zoology by Miss Lelah Reynolds, and is now skin number 69988, a female, weight 252.5 grams. This bird, taken at the same time of year as the two reported upon by Linsdale in the Condor (vol. 38, 1936, p. 216), gives additional evidence in support of his suggestions concerning dispersal in the fall season.—Margaret W. Wythe, *Museum of Vertebrate Zoology, Berkeley, California, October 1, 1936.*

The Alaska Longspur and Oregon Horned Lark in Texas.—In February, 1936, the writer spent several days collecting birds in the Texas Panhandle. Two birds, taken on February 9, represent two subspecies which have not been previously recorded for the state of Texas. A male Alaska Longspur (*Calcarius lapponicus alascensis*) was collected from a flock of several hundred longspurs on the plains, 10 miles east of Canyon, Randall County, Texas. A male Oregon Horned Lark (*Otocoris alpestris lamprochroma*) was also collected at the same locality. I am indebted to Dr. Harry C. Oberholser, U. S. Biological Survey, for the identification of these specimens.—James O. Stevenson, *Wildlife Division, National Park Service, Washington, D. C., October 7, 1936.*

Cooper Hawk Eats a Flammulated Screech Owl.—On August 31, 1934, a female Cooper Hawk, *Accipiter cooperii*, was killed at the Berry Ranch on the south boundary of Grand Canyon National Park, Coconino County, Arizona. During the preparation of the bird as a study skin, I noted the stomach was full; examination revealed the flesh, feathers, feet, and bones of a Flammulated Screech Owl, *Otus flammeolus*. The stomach contents were sent to the Museum of Vertebrate Zoology, Berkeley, California, where identification was verified by Joseph Grinnell and Alden H. Miller. I do not know of a previous record of the Cooper Hawk eating this species of owl.

The Flammulated Screech Owl has been recorded in Grand Canyon National Park only three times. The hawk, containing the owl here recorded, was taken just outside the south boundary of the Park. The Cooper Hawk is now number B-75 in the Grand Canyon National Park collection, and the remains of the owl are preserved in the Museum of Vertebrate Zoology, Berkeley.—A. E. Borell, *Wildlife Division, National Park Service, Santa Fe, New Mexico, September 30, 1936.*

NOTES AND NEWS

The Twelfth Annual Meeting of the Cooper Ornithological Club will be held in the San Francisco Bay region, with the Northern Division acting as host. Meetings are tentatively scheduled for Friday and Saturday, April 15 and 16. Field trips will be planned for Sunday, the 17th. It is hoped that a program inclusive of the numerous phases of ornithology that interest Club members can be arranged. Aviculture, bird-banding, oology, anatomy, paleontology and physiology, as well as natural history and systematics, should be represented. Interesting and valuable papers require careful preparation. Accordingly we urge an early planning for contributions to the program. In connection with this annual meeting, the Board of Governors will hold its Sixteenth Annual Meeting.—A.H.M.

The Western Bird Banding Association, at its last annual meeting in October, elected the following officers: President, E. L. Sumner, Sr.; Secretary, Hilda Wood Grinnell; Business Manager, William B. Davis. All communications regarding memberships, traps, or bands may be addressed to Mr. Davis or to the Association, at the Museum of Vertebrate Zoology, Berkeley. —J.M.L.

According to press advices, Richard C. McGregor died in Manila on December 30, 1936, at age 65. McGregor belonged to that group of "bird boys" who attended Stanford University during the 90's; he got his A.B. there in 1898. In those years he paid a good deal of attention to California birds, and he published 27 articles relating to these. Pacific Coast Avifauna No. 2, 1901, "A List of the Land Birds of Santa Cruz County, California," was from his pen. He was a Life Member of the Cooper Ornithological Club; his membership dates back to the very first year of the Club's existence, 1893. After leaving California he took up residence in the Philippine Islands, where through long years of consistent work both in field and study he established himself as authority on the ornithology of that region. He left a lasting record of worthy achievement there, in the form of numerous books and papers on its bird-life. At the time of his death, McGregor was one of the last Americans to hold a key position in the Philippine government, being editor of the Philippine Journal of Science and chief of the publicity division of the Department of Agriculture and Commerce.—J.G.

The importance of organization is axiomatic. The Cooper Club we believe to be well organized. Its activities throughout the year tend to focus at the monthly sessions of the northern and southern divisions. To what extent can further organization lead to growth of the Club and promotion of its aims? One way would be through greater use of the local chapter principle made possible by existing provisions of the by-laws. To our knowledge there are now active two chapters, one at Stanford University, one at Salt Lake City. These local groups serve as nuclei, attracting new members and facilitating exchange of information of interest about birds. Chapters need not be large; they are free to conduct their affairs in any manner they may choose. Local organization should impose no burden, and it does not need to conflict with existing natural history societies. A Cooper Club chapter can arrange joint meetings with other related organizations; at the same time, it would benefit through being a recognized unit of the Club. In thinking of places where there are active groups of members, such centers come to mind as Tucson and Flagstaff, Arizona; Portland, Oregon; Denver, Colorado; and Eureka, Sacramento, Fresno, and San Diego, California. To members resident in these cities and in others equally deserving of mention is extended the invitation to form a chapter.—A.H.M.

In a medical book printed in 1831 (Coxe's "American Dispensatory"), we read (p. 358): "Opinions are always to be distrusted which are formed during the ardour of novel investigations." How often has the aptness of this comment been illustrated in much more recent times! We think, for example, of the warmth of advocacy characterizing announcement of certain theories of bird migration. *Time*, for calm reflection, is required to bring final, correct appraisal.—J.G.

Cooper Club members in the San Francisco Bay region are pleased to learn that the aquatic park now being completed along the Berkeley waterfront south from University Avenue is to serve also as a sanctuary for birds. Improvements such as have proved so effective in attracting ducks at Lake Merritt, in Oakland, are being installed and the plans call for continued activities to attract and protect birds in the area.—J.M.L.

Remarkable growth in the *Wilson Bulletin* has been observable the past few years. This growth bespeaks enthusiasm and energy on the part of the officers of the Wilson Ornithological Club as also notable spread of serious interest in bird-

life throughout the mid-west. Anent our enforced and regrettable decision not regularly to publish formal book reviews in the *Condor*, as announced in last issue, we are pleased to note that the December issue of the *Wilson Bulletin* includes no less than ten full pages of reviews written by Editor T. C. Stephens. These reviews strike us as of the ideal sort; they give the reader in a few words a fair idea of the nature of the book or article reviewed, they are properly commendatory where truly deserved, and *also* they are sharply and justly critical in places. This review feature of the *Wilson Bulletin* is one that we have admired, and we hope nothing will interfere with its active continuation.—J.G.

Fig. 13. W. Otto Emerson, life member of the Cooper Ornithological Club, now past 80 years of age and well known to all of the older generation of bird students. Photo taken March 2, 1932, Emerson's 76th birthday.

Jean Delacour, eminent French ornithologist, has been in California since the latter part of November. With his round-the-world trip checked at this point by the maritime strike, he has made the best of his time by widening his acquaintance with the birds and bird students of the State. This has been pleasant for those of us who have had the opportunity of meeting with him, and also his sojourn here has enabled him to acquire living birds of species new to his aviaries. These birds, many of them delicate, he will "personally conduct," as soon as a through steamer to France can be had.—A.H.M.

In this era of rapidly changing habitat conditions for many of our native kinds of animals, it would be well for bird-watchers to keep close record of such conspicuous changes in numbers as seem correlated with the extending human use of the land and water. Human-imposed modifications of environment may affect certain birds favorably; on this score we can point to the Mockingbird, Linnet, Brewer Blackbird and Killdeer as having probably increased in numbers. On the other hand are doubtless many species whose essential living conditions are becoming more and more reduced—let alone those direct factors of destruction like shooting. Among these species there are some that may right now be on the verge of extinction. For future historical use, it is desirable that reports of actual numbers of individuals seen, and circumstances of their observation, be printed where later accessible. Some of the species we think of at the moment, from the standpoint especially of status in California, that ought to receive this sort of attention are: Mountain Plover, Florida Gallinule, Least Bittern, Ross Goose, Cackling Goose, Fulvous Tree-duck, Shoveller, Redhead, Red-bellied Hawk, Swainson Hawk, Osprey, Sandhill Crane, and Least Tern. What was the actual status of each of these species in the year 1936?—J.G.

Recently, when looking up some early California bird records, our attention was arrested by the title of an article by Elliott Coues, in the *American Naturalist* for 1870 (vol. 4, pp. 297-303). The article was entitled "Foot-notes from a Page of Sand," and we proceeded to read it through. It dealt with avian foot prints as seen on a sea-beach—observations probably made when Coues was stationed at Fort Macon, North Carolina. The discourse proceeds somewhat according to the formula of a standard detective story. Scientific imagination is given play on a foundation of accurate knowledge, with results that are, to a bird student, truly thrilling. Coues, in the judgment of not a few bird students today, was the most scholarly and at the same time the most literarily accomplished ornithologist America has ever produced.—J.G.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

SEPTEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, September 24, 1936, at 8 p.m., in Room 2503, Life Sciences Building, Berkeley, with President Miller in the Chair and about fifty-five members and guests present. Minutes of the Northern Division for August were read and approved. Minutes of the Southern Division for August were read. Appli-

cations for membership were: Mrs. Dorothy Dean Sheldon, 49 Canyon Road, Berkeley, Calif., proposed by Mrs. James T. Allen; Lincoln Ellison, Missoula, Montana, and Walter Moore, 5401 Miles Ave., Oakland, Calif., proposed by J. Grinnell; Henry B. Loof, Oak Harbor, Washington, proposed by E. L. Sumner, Sr.

E. L. Sumner, Jr., reported on the organization meeting of the Alameda County Wild Life Federation, September 15. He explained in detail the structure of the Federation and its function, not as a lobby, but as a means of spreading information concerning wild life to local branches. Following discussion, it was moved and carried that the Cooper Club continue its relations with the Federation, and that the original committee of three be retained as representatives, although each organization is allowed only one vote. The proposal of Loye Miller for Honorary membership in the Club, originating in the Southern Division, was read by the Secretary, signed for the Northern Division by Gayle B. Pickwell, John G. Tyler, J. Grinnell and Joseph Mailliard. A motion for the adoption of the report was unanimously carried.

Reports of field observations were numerous. Frank Richardson reported an abundance of Pileated Woodpeckers near Cazadero; at least seven were seen and as many more heard, September 19 and 20. Laidlaw Williams reported the presence at Carmel of the Golden Plover on August 13 and 26 and of the Pectoral Sandpiper on September 11. Mr. Clark P. Streator described his intensive survey of the bird and mammalian life of Santa Cruz County. Mr. Dyer told of having seen 100 Egrets recently at Salt Pond, Alvarado. Mr. Kittredge reported 10 Snowy Egrets, 70 American Egrets and the White-faced Glossy Ibis, at Los Baños, September 18. Mr. Grinnell recalled that in 1910 the Snowy Egret was reported as wiped out in California. Mr. Danforth gave additional records of this species from Elkhorn Slough and Los Baños; Mr. Davis mentioned its presence at Richmond. The Bell Sparrow, which does not appear on the campus list of birds, was reported on the fire road circling the head of Strawberry Canyon, August 30 and September 13, by Douglas L. Kraus. A case of acute mastoiditis in an Allen Hummingbird, autopsied by Dr. J. M. Neil, of Oakland, was reported by Miss Carter. Previous to its death, the bird had suffered paralysis of one wing and foot, due to pressure on the brain from the infection.

Mr. William B. Davis gave the main contribution of the evening, "Biotic Areas of Idaho." Illustrating with maps, he reviewed the general geography and something of the geologic history of the State. The biotic areas he had worked out primarily in relation to mammals, but much interesting information pertaining to the bird life was gathered at the same time. Mr. Davis had followed many of the same trails taken in 1890 by C. Hart Merriam, Vernon Bailey, and Clark P. Streator.

Adjourned.—FRANCES CARTER, *Recording Secretary.*

OCTOBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, October 22, 1936, at 8 p.m., in Room 2503 Life Sciences Building, Berkeley, with President Miller in the Chair and about eighty members and guests present. Minutes of the Northern Division for September were read and approved. Minutes of the Southern Division for September were read. A motion for final ratification of the proposal for Honorary membership in the Club, of Loye Miller, was unanimously carried. The Chair announced that the date of the next meeting would be advanced to Thursday, November 19, to avoid conflict with the Thanksgiving holiday.

The meeting was opened to field observations. One member told of a one-legged White-crowned Sparrow which had been seen here in April and October, 1935, and October, 1936, apparently quite able to survive with its handicap. From Glen Alpine Creek, near Fallen Leaf Lake, eight or nine Townsend Solitaires were reported, September 17 to 28, feeding on juniper berries. Mr. Dyer commented on the Mockingbird in Alameda County; it has now become so numerous that about twenty-five were recently seen by him in an hour, from the highway between Niles and Oakland. Several reports on the increasing number of Snowy Egrets in California were given, and Mr. Emlen told of spring nesting colonies of American Egrets in the Sacramento Valley, numbering two or three hundred individuals. Mr. Dyer reported having seen Road-runners attacked by hawks on two occasions, once in Santa Barbara County by a Sparrow Hawk, and again near his Piedmont home by another species, probably the Cooper Hawk.

Introduced as one who seeks the highest form of bird life, zonally, Mr. Howard Twining spoke on "Summer Observations on the Sierra Nevada Rosy Finch." Lantern slides illustrated the story of nine weeks of adventure and study in the High Sierra, where rigorous winter conditions were encountered as late as May 25. At permanent camp in Virginia Canyon, the list of nesting birds included, beside the Leucosticte, the Sierra Junco, White-crowned Sparrow, Mountain Bluebird, Clark Nutcracker, Mountain Chickadee and Water Ouzel. Other species were seen in migration as the snow receded. Nesting activities of the Rosy Finches began June 13. It is a striking fact that, at those high altitudes, during the intervals when the female leaves the eggs they

become apparently ice cold; and yet they hatch normally. The growth period is long; the young birds remain in the nest for eighteen days. By August 15, the Rosy Finches were found in flocks and had sought yet higher altitudes.

Adjourned.—FRANCES CARTER, *Recording Secretary.*

SOUTHERN DIVISION

SEPTEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum on Tuesday, September 29, 1936, at 8 p.m., with President Little in the Chair and eighty members and guests present. Minutes of the Southern Division for August were read and approved. Minutes of the Northern Division for August were read by title only. Applications for membership were: Harry C. James, 650 E. Mariposa St., Altadena, Calif., by Luther Little; Donald Vincent Hemphill, Southern California Junior College, Arlington, Calif., by Lester H. Cushman; William H. Long, Jr., 1334 White St., Ann Arbor, Mich., by W. Lee Chambers; Herman Belden Keene, 14 McKevett Heights, Santa Paula, Calif., by M. C. Badger; and Raymond Quigley, Jr., P. O. Box 445, Pico, Calif., by John McB. Robertson. Following the second reading of the proposal for Honorary membership of Loye H. Miller, George Willett moved that Dr. Miller be duly elected. The motion was seconded by Dr. Rich, and unanimously carried.

Mr. and Mrs. Vernon Bailey, of Washington, D.C., who were present were introduced, Mrs. Bailey by Dr. Miller and Mr. Bailey by President Little. Mr. Bailey showed a motion picture film of the trapping of bobcats and coyotes near Escondido, California, with the new trap that he has invented. He told of the construction of the trap, and illustrated its use with one which he had with him. The trap does not harm the animal in the least. It is securely held for any length of time without pain or discomfort. Pictures of eastern red fox cubs that Mr. Bailey has for pets at his home in Washington also were shown.

J. B. Dixon of Escondido then showed two reels of pictures taken in 1936, mainly in the high Sierra near Mammoth. These interesting pictures were in color and showed nesting of the Golden Eagle and Anna Hummingbird near Escondido, and of the Clark Nutcracker and the Sierra Nevada Rosy Finch in the mountains. The pictures of the Clark Nutcracker were taken in early April at which time everything was covered with snow: the thermometer would drop to twelve and sixteen degrees below zero at night. The pictures of the Sierra Nevada Rosy Finch were taken in early July, when most of the snow had melted, except where the nesting cliffs were at an altitude of 11,500 feet. A few other nests also were shown: Black-billed Magpie, Long-eared Owl, Nevada Sage Sparrow, Gray Flycatcher, Pigmy Nuthatch, and Sharp-shinned Hawk.

The secretary spoke of the program for October, and mentioned that it was necessary to advance the date one week to October 20 in order to arrange for the speaker and films.

Adjourned.—SIDNEY B. PEYTON, *Secretary.*

OCTOBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum, Exposition Park, on Tuesday, October 20, at 8 p.m., with President Little in the Chair and fifty members and guests present. Minutes of the Southern Division for September were read, corrected and approved. Applications for membership were: Luther J. Goldman, 1092 Keith Ave., Berkeley, Calif., by John McB. Robertson; Ernest Stanley Dodge, Peabody Museum, Salem, Mass., by S. G. Emilio.

A letter from the Fish and Game Development Association relative to the necessity of laws regulating the sardine reduction boats operating outside the three mile limit was read. Dr. Cowles moved that a committee be appointed to study the situation and report to the Board of Governors. President Little appointed Dr. Cowles, Mr. Platford, and Dr. Wood to serve on this committee. Dr. Wood spoke on the convention of the Federation of Natural Sciences to be held in the spring of 1937, and asked that two members of the Southern Division be appointed to serve on an executive committee to meet on December 9 to arrange the program for the coming meeting. President Little indicated that he would appoint delegates at the next meeting. J. R. Pemberton gave a report on the shooting of eagles from an airplane in the northern part of the State. He stated that the Bureau of Aeronautics had warned the pilot that his plane would be grounded and his license suspended unless he ceased his operations. Dr. Grinnell gave a résumé of the new state list of the birds of California upon which he is at work.

Herman Keene, the speaker of the evening, showed two reels of motion pictures, taken mainly in the higher mountains of Ventura County where he hunts mountain lions. As the pictures were shown, he told of his varied experiences in taking them. Twenty-six mountain lions have been trapped and killed since he started this work. The pictures illustrated methods of setting traps and protecting them from deer and other larger animals that travel the mountain trails. Two black bears that accidentally got into his traps were shown, as well as several mountain lions. Some interesting scenes showing rattlesnakes and their actions were included.

Adjourned.—SIDNEY B. PEYTON, *Secretary.*

For Sale, Exchange and Want Column.—Each Cooper Club member is entitled to one advertising notice in any issue of The Condor free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address JOHN MCB. ROBERTSON, Buena Park, California.

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FOR SALE—A Key to the Rattlesnakes, with Summary of Characteristics, by L. M. Klauber, published 1936 by San Diego Society of Natural History, $1. Includes every known rattlesnake, discusses identification, natural history, distribution, venom, first-aid directions, etc.; 92 pages, 127 illustrations.—CLINTON G. ABBOTT, *Director, Natural History Museum, Balboa Park, San Diego, California.*

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Supplement to Pacific Coast Avifauna No. 10. The author, Anders H. Anderson, has brought this State List up to date. Reprint from The Condor, XXXVI, No. 2, March, 1934, pp. 78-83 - $ .30

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Bird Art Catalogues

Catalogue of an exhibition of paintings by American Bird Artists, First Annual Meeting, Los Angeles Museum, April, 1926; 24 pp. - - -$1.00

Catalogue of the work of Major Allan Brooks held in connection with the third annual meeting of the Cooper Ornithological Club May 4-6, 1928, under the auspices of the San Diego Society of Natural History, Fine Arts Gallery, Balboa Park, San Diego, Calif., 10 pp. - - - - - - $ .50

Catalogue of an exhibition of bird paintings of Lynn Bogue Hunt, sponsored by the Southern Division of the Cooper Ornithological Club at the Los Angeles Museum, April, 1929. 16 pp., portrait of Lynn Bogue Hunt, and 7 half-tones - - - - $0.50

An exhibition of scientific drawings by John Livzey Ridgway, shown by the Los Angeles Museum, on the occasion of the Fifth Annual Meeting of the Cooper Ornithological Club - - - - $0.50

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Other Publications

The Story of the Farallones, 1897; 36 pp., 28 ills. - - - - - - - - - - - - - $ .20
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Report of the Birds of Santa Barbara Islands. Pub. No. 1, Pasadena Acad. Sci., August, 1897; 26 pp. - - - - - - - - - - - - $1.00
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